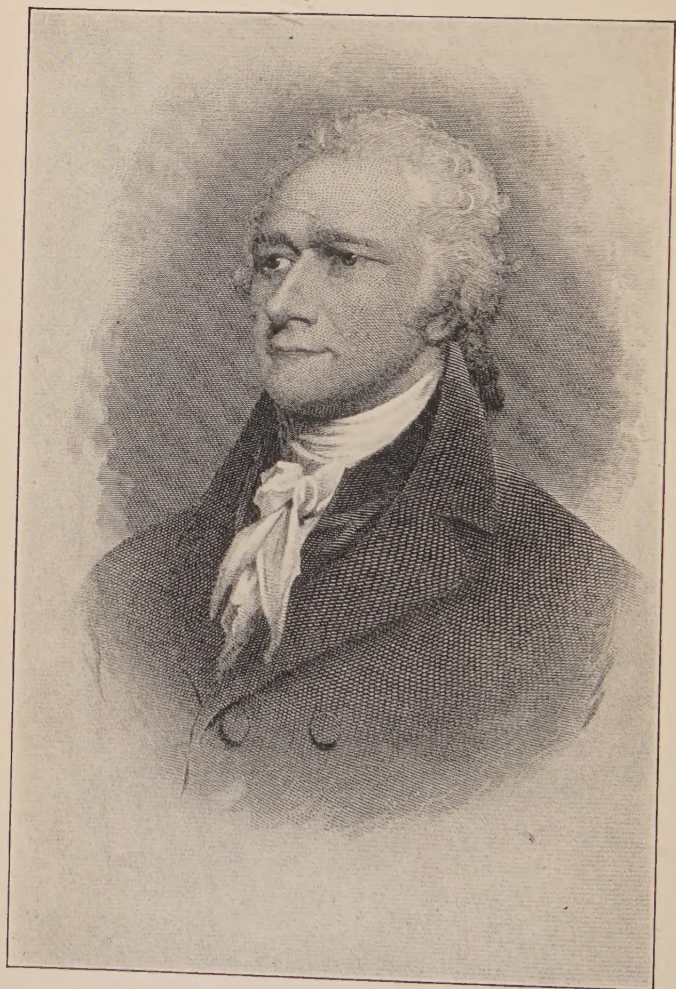


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ALEXANDER HAMILTON

MAKERS OF AMERICAN HISTORY

ALEXANDER HAMILTON

BY

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LOS ANGELES BAPTIST THEOLOGICAL SEMINARY

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ALEXANDER HAMILTON

P R E F A C E.

THERE are already a number of good biographies of Alexander Hamilton, of different sizes and planned for various uses. The political history of the first three administrations has also been carefully studied and well described from various points of view.

I have not, therefore, written a biography, nor a history of the times of Hamilton.

The notion suggested by the title of this series, when taken in its most positive and concrete form, defines my task. I have undertaken to show *how, and in what sense, Alexander Hamilton was one of the makers of this American State*. I have constructed my book with just that and nothing else in view.

On page 13 my view of the subject is stated in a proposition, or thesis.

I have spent especial care and pains on an exposition (Chapters II. to VII.), as full and circumstantial as space would permit, of the defects and faults of American public life between 1765 and 1780. This

exposition forms the background of the picture. I count on it to give to all the rest the effect which I think that it ought to have.

On page 102 I have stated the propositions about the relation of the man to his work, which seem to me to give the clew to Hamilton's career.

Hamilton's work went to the making of the American State, but personally he may be said to have failed ; for when death overtook him he had no political future, and could have had none, unless he could have readjusted himself entirely to the conditions of American public life. On pages 238, 241, 244, and 245 I have tried to show why this was so.

I have subjected Hamilton's opinions on economic, and more especially on financial, matters to a thorough examination and criticism. His attainments and his achievements in that domain have been greatly exaggerated.

After I had finished my book and arranged the citations of opinion and judgment about Hamilton at the end, it occurred to me to look and see what Hildreth had said about him. I found that Hildreth had suggested a view of Hamilton's career which coincides in the essential point with that presented by me. His view is quoted in the last paragraph of this book,

In order to use the briefest possible form of citation of authorities, yet give the reader the full titles in the most convenient manner for reference, I have put at the end of the volume a list of books cited, in the alphabetical order of the brief forms of reference used in the course of the work. This list is not a bibliography.

W. G. SUMNER.

YALE UNIVERSITY,
October, 1890.

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ALEXANDER HAMILTON.

CHAPTER I.

BIRTH, PARENTAGE, AND YOUTH.

LITTLE is known about the birth and parentage of Alexander Hamilton. He did not leave a clear and authentic story about it to his descendants. According to their tradition, however, he was born in the island of Nevis in the West Indies, Jan. 11, 1757. When he was killed, Gouverneur Morris, noting the event in his diary, remarked that he was of illegitimate birth. Among his contemporaries this was the current story. By some notes which were prepared by Timothy Pickering for a Life of Hamilton, which are produced by Lodge from the Pickering Papers, this story is traced to the West Indies.¹ In a letter to Jefferson, in 1813, John Adams called him the "bastard brat of a Scotch pedler."² Callender called him "the son of the camp-girl."³ Such were the amenities of public life in those days.

In Hamilton's letters there are several family letters. Although they show that he was by no means in con-

¹ Life of Hamilton, Appendix.

² Historical Magazine, July, 1870.

³ Prospect, 82.

stant intercourse with his family, yet they are affectionate, and especially show strong filial regard for his father. In 1785 he wrote to his brother James, who had begged his assistance. He cordially promises it, and goes on to ask about his father. "It is an age since I have heard from him or of him, though I have written him several letters. Perhaps, alas! he is no more, and I shall not have the pleasing opportunity of contributing to render the close of his life more happy than the progress of it. My heart bleeds at the recollection of his misfortunes and embarrassments. Sometimes I flatter myself his brothers have extended their support to him, and that he now enjoys tranquillity and ease; at other times I fear he is suffering in indigence. Should he be alive, inform him of my inquiries. Beg him to write to me, and tell him how ready I shall be to devote myself and all I have to his accommodation and happiness."¹ In 1792 we find him seeking the aid of a New York banker to send a letter to his father, who, as he has heard, is in distress. In a statement of his affairs which he prepared for his executor in 1795, he mentions that there are two small bills drawn on him by his father which are unpaid. His father is in distress. He adds: "Though, as I am informed, a man of respectable connections in Scotland, he became, as a merchant, bankrupt at an early day in the West Indies, and is now in indigence."² In 1797 he writes that he has urged his father to come to this country, but that the latter fears the change of climate. "The

¹ Works, viii. 166.

² Ibid. 351.

next thing for me," he says, "is, in proportion to my means, to endeavour to increase his comfort where he is."¹ In the same year he writes a bit of autobiography to a relative in Scotland who has opened a correspondence with him. He was separated from his father at an early age, by the latter's bankruptcy, and thrown upon his mother's relatives, who were then well off, but have since suffered misfortunes. He came to the United States at the age of sixteen, and at nineteen took the degree of bachelor of arts at the College of New York.² The last letter which he ever wrote was one to his wife recommending to her a lady, understood to have been his mother's sister, to whom he says that he was under great obligations which he felt that he had not duly discharged. He had sent for her to come to the United States, and he begs his wife to receive her as a sister.

According to the family tradition his mother was of French descent, and died when he was very young.

The reason of his being sent to the United States was that he had given some evidence of literary ability. There is a very amusing letter extant written by him when only twelve years old. It has a stilted, eighteenth-century style. It is written to his comrade Stevens, who had already gone to New York to study. In it he reveals the vanity of genius, and at the same time seems to blush and apologize for it. He says that his ambition is his predominant trait, "so that I condemn the grovelling condition of a clerk or the like, to which my fortune, etc. condemns me, and would

¹ Works, viii. 465.

² Ibid., 463.

willingly risk my life, though not my character, to exalt my station. . . . I mean to prepare the way for futurity." He wishes there was a war.¹

In October, 1772, he arrived in Boston, and went from there to New York. As a school and college boy, he was, of course, intensely interested in the excitements of the day. At the "meeting in the fields," July 6, 1774, to consider the Boston Port Bill, he made a speech. The resolutions of the meeting were strongly in favour of a non-importation agreement or commercial war.

Immediately after the session of the Continental Congress of that year, Seabury, afterward bishop, published, over the signature "A Westchester Farmer," a criticism of its proceedings, in two pamphlets, — "Free Thoughts on the Proceedings of the Continental Congress," and "Congress Canvassed by a Westchester Farmer." They were very able pamphlets, and set out that side of the question with great power. The "Farmer" said that non-intercourse would fall first on ourselves. "It will be more severely felt by us than by any part of his Majesty's dominions, and will affect us the longest." English merchants would find new lines of trade if they lost the American trade. "Our malice would hurt only ourselves." In this criticism of the means proposed he was perfectly right. Hamilton replied to him in an anonymous pamphlet, which was ascribed at first to Jay. It is called "A Full Vindication" of Congress. It is a summary, by a clever school-boy, of the leading

¹ Works, vii. 472.

points in the popular discussion of the day. His second pamphlet, however, in the same controversy, "The Farmer Refuted," is far more strong. He is driven back to a more thorough and comprehensive defence of his position. According to the fashion of the times, he seeks this in natural rights, and in a construction of English and colonial history. "The fundamental source of all your errors, sophisms, and false reasonings," he writes, "is a total ignorance of the natural rights of mankind. . . . The sacred rights of mankind are not to be rummaged for among old parchments or musty records. They are written, as with a sunbeam, in the whole volume of human nature, by the hand of the Divinity itself, and can never be erased or obscured by mortal power." It would be interesting to know what he thought of this rhetorical sophism, if he ever read it over again, — for instance in the days of Genêt and Adet.

He goes at length over the arguments about charters and the English Constitution, reaffirms the efficacy of commercial war, and declares that other powers would help the colonies, being induced by the promise of free trade. He admits the right of England to regulate trade by the Navigation Acts, but thinks that this is why she should not tax the colonies for revenue. All these notions were commonplace at the time among the whigs, but they appreciated the vigour and skill with which Hamilton set them forth. In the course of his argument, however, he was led to more than one position of which he would himself later have strongly disapproved. For instance, he would

certainly have denounced this as rank jacobinism if he had met with it in the literature of the Whiskey Rebellion: "When the first principles of civil society are violated and the rights of a whole people are invaded, the common forms of municipal law are not to be regarded. Men may betake themselves to the law of nature; and if they but conform their actions to that standard, all cavils against them betray either ignorance or dishonesty."¹

The next year he wrote a pamphlet against the Quebec Act. The grievance in this matter was one of the most doubtful among those of which the colonists complained. The Act gave to the Canadians French law, and an endowment for the Roman Catholic religion. The Americans objected to this, but still more to the vast extent of territory west of their own boundaries, — all between Pennsylvania, the Ohio, the Mississippi, and the Lakes, — which was thus in a measure shut against them, in disregard of claims which they entertained under their charters. On the face of it the colonists must, on their own principles of local self-government, admit that if the Canadians were satisfied, right was done, and the other colonies had nothing to say in the matter;² and although there might be dispute about the title to the land between different provinces, the mere size of the territory was no more against the claim of Canada than

¹ Works, i. 129.

² In the "Address to the People of England" (1774, by Jay), it is said that England had no right to set up the Romish religion or arbitrary government "in any quarter of the globe."

against that of Virginia, but there was an intention to shut up the old English colonies to the sea-coast. It took Wedderburn to blurt it out. He said that it was necessary to restrain emigration, and to prevent the Americans from spreading into the continent, "for the advantage of the empire."¹ Thus it was another of the schemes to sacrifice colonial interests to some other interests foreign to themselves.

The next spring, 1776, when Congress sent a commission to Canada, to try to persuade the Canadians to join them, the latter replied that they had been well treated by the English, and were satisfied. They had before them the address of the colonies to the people of Great Britain in which very offensive epithets were applied to the Roman Catholic religion.²

Hamilton's argument on the Quebec Act was the usual one of the Americans at the time. No one developed the point, for public discussion, about the subjection of the interests of the colonies to those of the mother-country, although the Americans had a complete instinct of it.

We next find Hamilton acting in two mobs in a manner far more consonant with his later tone of mind. He helped to save the President of the Col-

¹ Cavendish, 57.

² Carroll's Diary, 30. Hare, who was in Canada in 1774, before the Quebec Act was passed, says that the Canadians appealed either to English or French law, according to which, for the moment, would best suit their interests, and that they hated the English. The Act was a good stroke of policy for England. Cavendish shows that it was treated in England entirely as an *English* party struggle.

lege, who was a tory, from a mob at the time that the "Asia" fired on the city, and he interfered against a mob which threatened one Thurman for conduct which had displeased them. He also expressed strong disapproval of the exploit of Sears and a party from New Haven, who made a raid on New York, destroyed Rivington's press, carried off his types, and kidnapped Seabury and two or three other loyalists on their way home.

According to the dates given, he should have graduated in 1776; but as he was writing for the whig newspapers, and became more and more occupied with public affairs, he began to study artillery, and was made captain of the Artillery Company, March 14, 1776. In this capacity he earnestly and successfully advocated promotion for merit.¹

From this point his career in the American world began. It was a great career, because it had some pervading ideas, and they were not ideas of personal interest or ambition. He became the representative of union and energy. His admirers applauded him, and his enemies abused him, as an apostle of *energy* in government. Why should a man find a rôle as an apostle of energy? The answer lies in the most important features of the social and political situation in this country at the time. To understand this we need to study the notions of the parties to the colonial system about that system; the reaction on the Americans of the doctrines which they set up to justify their resistance to Great Britain without going

¹ Proceedings of the Provincial Congress of New York, 123.

out of the empire ; the social disintegration produced by the methods which they adopted to secure independence ; and the lack of discipline and organization in colonial life. The net result is that the whole civil organization declined. The Union exerted a remedial and disciplinary influence, but was for that reason forced to come in conflict with all the elements of disintegration.

CHAPTER II.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. I.

The Colonial System. — Relations of England, France, and the American colonies under it. — The significance of the revolt in world history. — The English Constitutional Law of the colonists.

No one appears to have examined critically the opinions, pretensions, and methods of the American colonists in the pre-Revolutionary period, to see how far they were right. The English never very seriously debated the doctrines put forward by the Americans before the war. After it was over, they had no interest ever to think of the matter again. Americans, after the fight was won, had no motive to go over its principles again. It has seemed ever since enough to indulge the patriotic faith that the principles were sound and the doctrines correct.

It is not now intended to make any such critical examination. In truth, the literature of that period is indescribably dull. It is astonishing how far the writers kept from the facts and the evidence. This is so much the case that it is often impossible to learn what was really the matter. They set traps of technicalities for their adversaries, but took license for themselves from the "principles of the English Constitution" and the all-embracing theory of natural

rights. It would be a great task to unravel all this, and the fruit would not be worth the labour. Nevertheless, the neglect to discriminate between the different notions which were accepted at such a critical period, and the habit of treating them all with the same sanctity, does mischief. We have all sorts of political and social conventicles nowadays, in which declamation and dogmatism avail themselves of "the great principles of the Revolution."

Every great social movement inevitably presents a mixture of noble and sordid elements. Its methods are very often impure, and its watchwords are very sure to be half-truths. When the crisis is over, however, and the days of orderly growth come again, the sordid element must be eliminated, the methods of agitation must be laid aside, the rhetoric and declamation must be toned down, and the half-truths must be dissolved.

The American States had a great deal of this work to do. As we shall see, there were large elements of error and abuse. We desire to see of what kind they were. It will be a good and fair test of political theories to ask: Would they be tolerated now? Would we consider them good law and good statecraft now? For we must note that our territories are our colonies. It is singular to what an extent laws and political devices have been affected by the circumstance that regions were contiguous or were separated by water. The case before us is one such. Our new territories are lands owned by the Union either by discovery, purchase, conquest, contiguity, or

some of the other modes in which states have taken possession of outlying territories. The Union possesses both the property in the soil and the political jurisdiction, and it asserts its right and authority quite as tenaciously as ever any monarch did. The territories are open to new settlement, — that is, colonization. The terms are liberal, but they are such as the sovereign, the Union, sets and allows. It holds a firm veto on territorial legislation beyond the limits of the concession which itself has made. It appoints all the important officers. It would not for a moment tolerate a movement of independence, — that is, of secession. It grants no representation. It imposes taxes, — both protective and revenue taxes. In our case the colonies when they grow up are incorporated in the mother body, and obtain full constitutional equality of rights and privileges. No doubt we might have experience of some of the difficulties of a colonial system if it were not for this last fact.

If therefore we ask whether we should consider a proposed arrangement practicable and expedient as between the Union and a State, or as between the Union and its colonies, we have a good test for the question what was reasonable and practicable between the colonies and Great Britain. It is immaterial to this purpose that the colonies were not represented, while the States of this Union are ; for what we want to see is, what was consistent with the integrity of the empire, assuming that it was to continue, and that some adequate constitutional device could be invented to satisfy the demand for representation.

For our present purpose, however, this test has a greater value, which must not be passed over. When the States got their independence, they had broken a restraint. They were "free," in the sense of being left without any other political ties or restraints than those which they put upon themselves, in their own constitutions. In the States, then, the elements of revolutionary dissolution and decay began to work; and when the rectifying operation of peace and order came to be applied, it was the Union, the imperial unity, the great political body which could figure in history and in the family of nations, through which the disciplining and organizing work went on. *Therefore the Union was from the start at war with the turbulent, anarchistic elements which the Revolution had set loose.*

It was no accident that the integrity of public credit was involved in that struggle too. Financial integrity is a test of political institutions. Whenever they decay or are corrupted, the evil manifests itself in financial abuses. The financial vice of our Revolutionary period was repudiation, both public and private. It was the States which were the stronghold of it: it was the Union which had to combat it. *Therefore the contest with anarchy and repudiation was the great work which went to the making of this nation at the end of the last century, and Alexander Hamilton was one of the leading heroes of it.*

This may serve as a thesis of what we have to show. We state it here in order that the reader may understand the scope and pertinency of the facts we bring before

him to the purpose in view. When he has learned to see the contests of that day in their true significance, he will have no trouble in tracing the same conflict down through later history. Shays's Rebellion, the Whiskey Rebellion, New England disunion, nullification, Dorr's Rebellion, secession, have been incidents in the process by which constitutional order has gradually extended its power over the lawlessness and undisciplined turbulence which prevailed at the beginning.

The first task, then, is to see what the real state of things was.

Life in the colonies in the middle of the eighteenth century must have been dull in the extreme. The elements of intellectual activity were few, and were confined to a small circle. Under such circumstances trifles become magnified to great importance, if they furnish interest and a little excitement to fill the vacuum and relieve the tedium of a dull existence. Therefore, under such circumstances gossip is an important engine, personal feelings and interests enlist neighbours and friends. Cliques are formed ; feuds grow up ; quarrels distract church and town meeting. The fervor is due, not to the magnitude of the stake, but to the intensity of the feeling which has been aroused. Such a society presents very strong contrasts, which appear quite inconsistent with each other. It is at the same time dull and apathetic on the one side, that is, upon a matter in regard to which it has not yet been awakened, and on the other side in the highest degree volatile in regard to a matter

to which its nerves have been quickened. The pre-Revolutionary and Revolutionary periods illustrated these features abundantly.

The first common sentiment which moved a number of colonies at the same time was the dread of the northern and middle colonies of the power of France. They held that it was a struggle to the death for the possession of the continent;¹ and the one thing on which they could be got to show some sentiment of sympathy and common interest was the conquest of Canada. When, in the Revolutionary War, Canada did not join them, and they saw it once more under a separate interest from themselves, we have already had occasion to notice how they undertook to conquer it, following therein the worst traditions of that old European statecraft against which they were revolting. The same feeling was active still in the second war with England.

A war between England and France was therefore always popular, at least in the northern colonies, because it offered chances to conquer Canada. It is

¹ An illustration of the popular opinion is afforded by a letter of 1758, by Shippen, of Philadelphia. If France holds Cape Breton, she will one day drive England from the continent. She must be completely conquered. (Balch, *Penn. Letters*, 128.) "It has been said, on good authority," that Franklin brought about the expedition against Canada, and Wolfe's victory. "In all companies and on all occasions he urged the reduction of Canada as an object of the utmost importance. It would inflict a blow upon the French power in America from which it could never recover, and which would have a lasting influence in advancing the prosperity of the British colonies." (Franklin, i. 248.)

not true that the colonies were drawn into European disputes against their will and interest. On the other hand, the ideas of statecraft and political economy which prevailed in Europe turned about the same contest. Since the beginning of colonization the Europeans had been elaborating a system of policy with regard to the administration of colonies which is not yet by any means exploded, but which is one of the leading specimens of human folly, imposed by authority to deprive millions of men arbitrarily of chances which they might have had on earth. That system of policy is nowadays passed over as dead and gone.¹

The colonial system grew out of the application of mediæval notions of trade to a system of commerce with outlying continents. It was entirely constructed from the European standpoint.

Europe was the head of the world. The outlying continents were to be organized as its subordinate members, and governed from it according to its interests. At the same time there was a contest between the nations of Europe, especially between England, France, Holland, Spain, and Portugal, as to which one of them should get and enjoy most of the advantage to be won from the exploitation of the outlying continents. That struggle, of course, turned into an effort on the part of one to get supremacy, sole dominion, a "sole market," and of all the others to com-

¹ It is a remarkable omission that there is no chapter on the colonial system in Winsor's History. It has changed its form somewhat, but is not by any means dead, as we shall see below.

bine to prevent any one from succeeding in that attempt. As Spain, Holland, and Portugal declined in power, this contest turned into a rivalry of France and England. The doctrines of the system made war always popular with the merchant class. That class has often been stigmatized as basely fond of peace and order. They were not so in the eighteenth century, and they allowed only short intervals of peace.

The object was to conquer colonies so as to aggrandize one's self and put down one's rivals by appropriating and monopolizing "trade," — that is to say, the opportunity of exchanging with the inhabitants of a certain part of the earth's surface. So far as the system succeeded, therefore, it carved up the globe into portions, attached to the several nations into which Europe was divided; and as they were jealously separated from each other by prohibitions and restrictions on trade, as each of them was constantly striving to increase its force for war with the others, the whole body was made up of warring units, each composed of a European nation and its colonial dependencies.

The value of colonies was supposed to consist in the power to coerce them into selling their products only to the mother-country, and buying what they wanted only from the mother-country. The notion was carried out to its fullest development, namely, that if you can get the political jurisdiction of a territory, you want to trade with it, not simply by permitting absolute freedom, but by enforcing absolute freedom, and you must not let it trade with anybody else at all;

but if you have not the political jurisdiction, you cannot expect to trade with it, because its sovereign will not let you. For instance: While France owned Canada, Canadians must trade freely with France, and not at all with Englishmen. When England got Canada, Canadians must trade freely with Englishmen, not at all with Frenchmen. Plainly, it might be for the interest of Canadians to trade with both all the time. If it was so, because each had what the other wanted, the colonists broke the system so as to carry on illicit trade with the other country. Thus the system contained two obvious absurdities. The efforts to monopolize trade destroyed production, and constantly made less and less for anybody, which is the result of all violence; secondly, each nation which maintained the system for itself was all the time trying to break down the same system of others. In fact, the illicit trade must never be lost sight of in discussing the matter. If the system ever could have been, or ever had been, actually enforced, according to the laws and ordinances on the books, it would have produced ruin. It never was so enforced even approximately. It was broken and defeated on every side by bribery, collusion, and chicane.

The navigation system was an adjunct of the colonial system or a part of it. It is plain that the above-described arrangement could only be enforced by a great naval power. The Navigation Acts had for their purpose to monopolize the carrying-trade and the shipping. The rules of it were elaborated in detail, with the object of maintaining a mercantile marine

out of which a naval marine could at any time be recruited ; in the cant of the system, "a nursery for seamen." The navy was to defend the mercantile marine, the colonies, and the products during transportation. This operation was to secure the national wealth, and the national wealth was to be taxed to maintain the navy and all the rest of the establishment. It was confidently believed that this total combination produced a wise and stable system, the parts of which concurred in contributing to the general wealth. Its fatal defect was that it restricted growth. The parties spent their strength in quarrelling for the possession of a sixpence, when they might each, by the same effort, have produced a pound.

The systems of policy which statesmen adopt are always founded on some assumed doctrine in regard to the immutable relations of things on this earth, arising from the facts of human nature and of earthly existence, — that is, what are properly called natural laws of the social order. A statesman who did not have some theory or doctrine of human welfare, according to which he supposed that he was planning his arrangements so as to attain his purpose, would not be a practical man ; he would be a fool. It is immaterial that the theory he accepts may come to him by tradition, that he may regard it as ratified by experience, and may repeat its maxims parrot-like. The eighteenth-century statesmen had adopted a set of economic doctrines deduced from the notion that only one party wins in an exchange ; namely, that one who gets money on balance. They did not have any

doctrine of capital, and did not understand what capital was. They therefore confused money and capital, as well as money and wealth. They believed that the way to increase the wealth and economic power of a state was to increase its stock of the precious metals, and that, to do this, the only way was to bring it about that that state should export more merchandise than it imported, so as to draw from other nations gold or silver for the difference. Of course, on this theory, the nations won wealth only at the expense of each other, and a system of economy and statecraft founded on war and national hostility was the inevitable deduction. In their social affairs men have almost always been relentless in their logic, when once they have fixed their big dogmas at the bottom. They certainly were so in the development of the so-called mercantile system.

It followed, from the dogmas just stated, that a "state" was the real agent in wealth production. The talk was all the time about "making the country rich." It was in and through the political unit that an individual would prosper. The political unit might be a product of feudal warfare, royal marriages, or any other historical accidents. Nevertheless, being an historical fact, its citizens must hope only by and through it to prosper. The welfare of all therefore hung on the wisdom and power of the kings and statesmen who administered and directed the action of the state. The functions of these latter were of transcendent importance. Their art was elaborated accordingly. These theories are by no means extinct. They have been

robbed of a few of their most absurd corollaries, and the state-craft founded on them has silently and reluctantly relinquished a few of its most irrational oppressions. For the most part, it maintains itself intact in practice, and strives to find justification by new philosophic inventions of political dogma.

The American colonists accepted the current theories and maxims. They read with dissatisfaction the doctrines of Child and Wood and Gee about colonies and colonial policy, for it could not please them to note how calmly they and their interests were ignored in the discussion of what colonies were when viewed from the standpoint of the mother-country, and what ought to be done with them from the same standpoint. In fact, the English writers between the middle of the seventeenth century and the middle of the eighteenth, pursued their discussions of expedient policy for England with no more attention to the political ideas of the colonists than we now give to the political ideas of the Indians, and they did not have that philanthropic interest in the colonists which we have in the Indians. The colonists, however, always yielded the right of England to regulate trade.¹ We have seen that Ham-

¹ In a long statement of American grievances by Charles Thomson, in 1765 (Thomson Papers, 7), the most important points mentioned come under the Navigation Act. In a letter to his son, in 1768, Franklin thinks that he who would dispute the right of Great Britain to regulate trade would stand on firmer ground than Dickinson in admitting it (Franklin, vii. 392) ; but in public he admitted it guardedly. He said that the Americans agreed to the Navigation Act as to the use of English ships, but wanted the regulation of trade to be truly adapted to the good of the whole empire (Franklin, v. 7). In

ilton, on the very verge of independence, admitted the propriety of the Navigation Acts. All did the same. There never was any resistance or dispute on that point. The navigation system, however, was their greatest real grievance. Their real great oppression, of which other things were only details, was that they were governed from the other side of the world. They could not get attention to their needs and interests, although they were not allowed to do what their own imperative interests required, without persuading the home government to allow it.¹ That meant that they had not adequate self-government; in other words, that they needed independence.

No such situation could be expected to clear up to a distinct and logical recognition of the truth. The colonists yielded to the limitations of the colonial system because they believed in the doctrines on which it was built. They admitted that these limitations were for the good of the whole empire. They prided

the Congress of 1774 a discussion arose on the Navigation Act. Five States favoured allowing the regulation of trade; five opposed; two, Massachusetts and Rhode Island, were divided (Adams, ii. 397). In the address they consented to it (Journal of Congress, i. 28). R. H. Lee said that to strike at the Navigation Acts would unite all England against the Americans (Adams, ii. 363). Perhaps this is the reason why they never took issue on that point openly.

¹ Lord Essex told Walpole that Grenville lost America because he read the American despatches: that there was a closet full of them in Newcastle's time unopened. This might pass for a smart speech; but the unopened despatches must have been the grave of a great many colonial interests. (Walpole, George III., i. 278.)

themselves on being Englishmen, and on their loyalty to the King, and sacrificed their interests to a patriotic phrase or two, just as the system assumed that they would do. Some misgivings of course arose. The facts and the doctrines would not agree. What they saw and what they had always been told contradicted each other, but in that case they sought a bias. They consented to the restrictions of the system for the sake of the empire, but refused to be taxed for revenue, and demanded that any incidental revenue should go to the colony in whose ports it was collected. The English always scouted this distinction as a sophistical refinement.¹ The colonists had first objected to internal taxes, but consented to import duties. Then they distinguished between import duties to regulate commerce, and import duties for revenue. They seemed to have changed their position, and to be consistent in one thing only, — to pay no taxes and to rebel. We may be able to discriminate between duties to regulate commerce and duties for revenue, which the English said that they could not do, but we cannot understand why the colonists should consent to the former, while they objected to the latter, *on the ground that they were not represented in Parliament*. The former were far more capable of abuse against the interest and welfare of the colonies than the latter, and

¹ Pitt said (1765): "I cannot understand the difference between external and internal taxes. They are the same in effect, and only differ in name. That this kingdom has the sovereign, the supreme legislative power over America is granted. It cannot be denied. Taxation is a part of that sovereign power." (Prior Documents, 60.)

they therefore needed representation for defence against the former even more than against the latter.

In this connection the English formula that Parliament "gives and grants" taxes to the crown was extremely important. An English legislative assembly, by the very language of the Act (1767), gave and granted to the crown property of colonists to be taken in taxes on their consumption of paper, paints, and glass.

The conquest of Canada and the exclusion of France from the North American continent was the event which broke up the old order and led to its dissolution.¹ In fact, the old system ran to its own dissolution by the development of its own elements. In the seven years' war France and England joined in another grand struggle in the prosecution of their rivalry with each other, which could not permit a rest. The war ended with the humiliation of France and the complete success of England. She had then won the object of ambition, sole dominion, and especially control of the sea. Among the pet maxims of the prevailing system were, "Trade follows the flag," and "He who rules the sea will rule the land," — good illustrations of the emptiness and power of such sayings. It then remained to harvest the advantage of what had been won. The object of sole dominion was of course monopoly. What had

¹ T. Townshend, Jr., suggested that it might be well for England to give Canada back to France. (Cavendish, 16.) Turgot argued that it was a good thing for France that she did not own Canada. (Turgot, ii. 555.)

been won was useless unless it could be treated in such a way as to exploit it.

The best students of current events had foretold, even before the seven years' war, that the effect of sole dominion would be utter disappointment, because it must defeat itself.¹ The exploitation of it would make the colonies revolt against it. The English feared this; and the measures which they adopted, which constitute the detailed grievances of the colonists, were of three kinds. They tried to stop the illicit trade, to get a revenue from the colonies which should make the latter contribute to the power of Great Britain, and they planned measures to reduce the colonies to more direct administrative dependence. The measures under the last head were insidious, and their real aim was concealed under plausible pretexts of good government and efficiency. Such were the laws to make the colonies support troops, and to draw taxes from them out of which the mother-country should pay judges and the chief civil officers. On the face of the matter these measures were all good, and the colonies appear refractory and unreasonable in resisting them. It is in their hidden purpose that the wrong lies. These measures, in connection with the tax measures, would have reduced

¹ In 1750 Turgot, then twenty-three years old, delivered a discourse at the Sorbonne, in which he said: "Colonies are like fruits which cling to the tree only until they are ripe. When they suffice for themselves, they do as Carthage did, and as America will do some day." (Turgot, ii. 602.) There are also very remarkable passages in "*L'Ami des Hommes*" (1756), pt. ii. 181; pt. iii. 6.

the colonies to satrapies. Every step in regard to the colonies after 1763 was a matter of party struggle and political advantage in England,¹ and also a matter of sordid interest on the part of those who wanted to "remove the burden of a tax to distant shoulders."²

The revolt of the American colonies was therefore an incident of commanding importance in the history of the world. It was a break in all the accepted traditions of political economy and statecraft. Frederick the Great spoke of it, perhaps with greater significance than he understood himself, as "this crisis in the affairs of *Europe*."³ It had intimate relations with the politics of all the nations of Western Europe, and even of Poland. It would never have taken place if the government of England had not been suffering from vices which had corrupted King, Cabinet, and Parliament all at once, on account of the King's attempt to establish personal rule, the subserviency of his ministers, and the corrupt use of money by him to influence elections to the House of Commons. If the King had succeeded in the conquest of the colonies, which was his personal measure, his power would have been established, whereas

¹ Pownall, *Administration*, ii. 3.

² Walpole, George III., i. 278. See also ii. 26. Speaking of Grenville, he says: "Thus did this pedler in revenue confound the tranquillity both of America and Great Britain." In "Last Journals," ii. 360, he says that the country gentlemen had connived at all the violence against America in the hope that a revenue from thence would lessen the land tax.

³ Circourt, iii. 79 (in March, 1777).

by his failure it was ruined. Hence it is no fanciful idea of those who say that the revolt of the colonies saved the English Constitution. Frederick also noted this element at issue in the revolt.¹

The Americans were therefore admitting the theory by virtue of which they were oppressed, while fighting the applications of it. Probably this is the reason why they never could make any rational theory of their opposition. They claimed the rights of free-born Englishmen and the guarantees of the English Constitution, but they were forced to find some means of defining which acts of Parliament they would accept, and which not. This it was impossible to do by any other criterion than that they would accept those which they were willing to submit to, and others not. In order to evade and deny the authority of Parliament, they sometimes construed the relation to the empire to consist in a relation to the King only, as if he had been King of England, Ireland, Massachusetts,² etc. However, they had no idea of thus making crown colonies of themselves, and so they set up the charters against the King, or they turned

¹ Circourt, iii. 130, 176.

² "George III. was obeyed in Massachusetts as King of Massachusetts, not as King of Great Britain." (Sec. Journ. Cong., iii. 197; in 1782.)

³ Their arguments often went the length of maintaining that the charters were perpetuities, and that they created sovereignties, as if the King, in a charter, had ceded away property and jurisdiction completely. Franklin tried to deduce the powers of the Pennsylvania Assembly from those of the House of Commons, but he was told that the Assembly had no powers

against the Ministry as the party at fault.¹ When this argumentation became complicated, and was found to involve consequences on one side and the other which they were by no means ready to accept, they had recourse to "natural rights," which invariably extricated them from all difficulty.² These same difficulties appear in every attempt at reconciliation which was made. There never was a proposition of that kind made by either side to the other of which a modern student could say that the other side ought to have accepted it, as a fair settlement of the diffi-

but those given in the charter. (Balch, Penn. Letters, 110.) When the States got independence, they made short work of some charters; for instance, that of Pennsylvania. The other charters had to be set aside by great effort; for instance, in the matter of the western lands. Pownall thought that the charters ought to be respected, but he ridiculed the inference that Parliament, the great council of the empire, had lost "censorial or remedial power of self-preservation." (Administration, ii. 105.) In 1782 Shelburne said that the charters were "*sottises*." It would have been well if the States could have considered them so. It would have saved much trouble. (Circourt, iii. 46.)

¹ April 1, 1776, Washington wrote "the King's troops," saying that he would no longer keep up the distinction of "ministerial." (Reed's Reed, i. 180.)

² Bentham opposed the independence of the United States on account of the badness of the arguments they used. "The whole of the case was founded on the assumption of natural rights, claimed without the slightest evidence for their existence, and supported by vague and declamatory generalities." (Bentham, x. 57, 1827.) The report of a debate in the Committee on Rights, Grievances, and Methods of Redress in 1774 (Adams, II. 370) shows how hard it was to agree on a theory to which to refer their enterprise for justification.

culty. This is especially the case with regard to the propositions of the Americans ; for they never made one which would have given reasonable hopes of smooth and satisfactory operation, — never one which we would to-day consider as free from objection, if it were proposed as a system for the relations of our States and the federal Union. As we shall see, the federal Union has had to establish itself by overcoming the very notions which caused those conditions to be inserted in the schemes of reconciliation with Great Britain.

After examining all their discussions and disputes, we throw them all aside as really unprofitable and useless. The case was not in the interminable pamphlets, addresses, petitions, and negotiations. The case was that the colonies were no longer afraid of a powerful neighbour. They could be independent ; they dared to be independent ; the time had come for them to be independent. In what form the issue would present itself was not essential. The question for a colony always is : Is the protection and patronage worth the dependence and submission ? It is sure to come to the time when it answers in the negative, unless the relation turns so that the mother-country suffers injustice by it. After all the argumentation was exhausted, the issue which did arise was one of "principle." The English maintained a right to hold the colonies subject to Parliament as the supreme legislature of the empire, including the power of taxation ; and the Americans denied the right of Parliament to tax them at all.

When all the wrangling about rights has been exhausted on a political question, it comes down to this : Has any one the means to prevent you from doing what you want to do? or, Have you any power at your command to prevent your opponent from doing what he wants to do? After the colonies had overcome the sentimental tie of loyal tradition, they were ready to break away and be independent.¹ Could Great Britain hold them?

Frederick the Great and other wise lookers-on thought it madness to provoke the quarrel, or, having provoked it, to try to conquer by force.² In a paper which was thrown into Franklin's gate at Passy, it was described as the plan "of catching two millions of people in a boundless desert with fifty thousand men."³ The things which made it impossible were the ocean, the distance, the wilderness, and the climate.⁴

The most important point to note, however, is that the revolt of the colonies was a reaction of the prevailing system against itself. We have seen in Hamilton's pamphlet against the "Farmer" that he expected other powers to intervene to aid the colonies against Great Britain. The first motive for this lay in

¹ In 1768 Kalb reported to Choiseul that the Americans were loyal to Great Britain; that they proposed nothing but commercial war, and that the interference of any other nation would drive them back at once to a reconciliation with the mother-country. (Kalb, 288.)

² Circourt, iii. 91, 165, 174.

³ Durand, 279.

⁴ Johnson's Greene, ii. 393.

the hatred which was felt by all the other nations toward Great Britain for the arrogance of her behaviour since she had won "sole dominion." Frederick was extremely bitter against her, and was very eager that the war might go on, to keep her from interfering with his own selfish and unjust schemes.¹ Spain was eager to do England an injury, and France was ready to seize an opportunity to throw off the humiliation of 1763 (some details of which, such as the presence of an English commissioner at Dunkirk, were especially galling to her), and to recover her place among nations.² The second force which was expected to come into play, and which was also mentioned by Hamilton, was far more important. It was the offer of free trade to other nations as an inducement to them to help the colonies. All this was the most natural application of the received opinions. The English had always said that their colonies were an invaluable possession. They believed it. The colonies had therefore come to believe themselves invaluable to Great Britain. The

¹ Circourt, iii. 27, 209.

² France watched the American colonies for ten years before the Revolution broke out, anticipating the moment when they would give her a chance of revenge on England. In 1764 Pontleroy was sent over, and in 1768 Kalb, to report on the sentiments, opinions, and resources of the Americans. A great amount of information was obtained and stored away which came into use in 1776. In 1767 Franklin wrote to his son that the French ambassador was courting him. He hoped that the Americans and English would give the French no opportunity to stir up trouble between them. (Franklin, vii. 357.)

other nations had always envied Great Britain her colonies, and had supposed them of great value to her.¹ This was not true, however, except upon the grounds of the received political economy, and it was an application of that political economy, not a denial of it, when the colonies said: If we revolt, we can dispose of ourselves (this valuable possession which we have always been), and we will offer ourselves in friendship, alliance, and commerce as a means to get aid. Thus they and all the other parties to the affair, while reasoning from the colonial system, helped to ruin it.² The Americans used that system, instinctively not intelligently, to get England to drive France out of North America for them. Then, by the notions of the same system, they got France to help them win independence of England. They were the only ones who were not duped, not because they duped the others, but because their situation made their doctrinal error ineffective for them, while it remained effective for the others.

¹ George Chalmers (*Strength of Great Britain*, 1804) declared that the revolt of the colonies was brought on largely by the factious assertion that England could not get on without the colonies, and by the opinion of France and Holland to that effect.

² In 1768 Choiseul was planning, with Count Châtelet, to hurt England by joining Spain in overthrowing the colonial system and admitting the products of North America to the French and Spanish colonies. That would have been a masterly assault on the traditional falsehood of the situation, by an appeal to the truth of the situation, but it involved far too wide a breach with all accepted ideas. Force of knowledge and will could not be collected to carry it out. (Kalb, 70.)

There were very few who correctly measured the significance of the revolt in the light of the new ideas. If it meant that colonies were no longer to be treated as plunder, it meant that the globe was no longer to be partitioned out among themselves by the nations of Europe. There was no longer to be a head with dependencies, but America was to be a new member of the family of nations, having equal rights with all the rest.

One man at the time saw this with wonderful distinctness. That was the French economist and statesman, Turgot. He was called upon, in 1776, for an opinion on a memoir which had been submitted to the King by Vergennes on the policy to be pursued with respect to the revolt of the colonies.¹ He thinks that the colonies are sure to win their independence. If the English should conquer the sea-coast, it could only be by devastating it. The Americans could then retreat to the interior and harass the English on the coast; or, the Americans will bend while force is on them, only to spring up again at the first opportunity. Assuming then that independence is inevitable, he says: "This event will certainly be the epoch of the greatest revolution in the commerce and politics, not only of America, but also of all Europe." In answer to the question whether the Americans will become warlike, if the war lasts a long time, he answers that he thinks not. He thinks that they are peaceful. Wages are too high among them for manufactures to flourish, and they will not care for ships unless English ideas

¹ Turgot, ii. 551.

prevail. Then he takes up the question as to the effect of the independence of the colonies of England upon those of other countries, especially those of France, of which the only important ones remaining were the sugar islands. All European states which have colonies, said he, must either engage in constant war to keep them, or the colonies must be allowed complete freedom of commerce. "Then the illusion in which our politicians have been lulled for two centuries will be dissipated. Then we shall appreciate the exact value of those colonies which are called 'commercial colonies,' whose riches the European nations have planned to appropriate by reserving to themselves the exclusive right to sell to them and buy from them. We shall see how precarious and fragile was the power based on this monopoly, and perhaps we shall see by the smallness of the change which we experience, that it was equally empty and chimerical at the time when we were the most dazzled by it."

In 1780 Thomas Pownall published a pamphlet on the significance of the American Revolution, which he called a "Memorial to the Sovereigns of Europe on the Present State of Affairs between the Old and the New World." Pownall knew America well. He had been Governor of Massachusetts and New Jersey. He was completely emancipated from the balance of trade notions, and in this pamphlet thoroughly exposed the fallacy of the notion that America could never grow great because the balance of trade was always against her. He declared that the sovereigns of Europe might recognize the fact or not as they

chose, but it was certain that the Americans would maintain their independence, and that their appearance on the stage as an independent nation would force an entire reconstruction of the systems of policy hitherto in vogue. He said that England and France might fight as to which of them would hold America in its dependence, but that America would be dependent on neither. He had sanguine expectations of the glorious consequences which he thought would ensue, but which have not ensued. He did not doubt that if the old restraints and obstacles with which he was familiar were removed, then all must flow on rightly and prosperously. He did not know what new restrictions and obstacles would grow out of the new movement itself. This pamphlet is a magnificent forecast of the possibilities of America. As we shall see below, Americans did not cut themselves loose from European complications, did not claim an equal place in the family of nations, and did not appreciate their own destiny until after the second war. They have never yet realized that destiny in the simplicity and with the power with which this man perceived it.

These are the wider aspects of the American revolt which present its majestic features. It is when we turn to its narrower and domestic aspects that we meet with some less attractive features. Indeed, evil elements were not wanting in the grander aspects. The attempt at independence provoked surprise and doubt. An outlying continent independent of Europe, but possessed of an inheritance of European culture: what would that be like? What place would there

be for it? What changes and dislocations would it produce? There was much speculation on all these questions in camps and courts, counting-houses and academies. Of course there were also eager thoughts on the question, what could be gained from it for this one and that one. The new state was not yet created when it began to be beset by adventurers and speculators, who were eager to win profit from it.

For our present purpose, we have to notice that in the ten years before the Revolution, all the traditional ideas of political economy and all the traditional doctrines of political philosophy and constitutional order were thrown into confusion, and mixed with numerous crude and fallacious notions, without reaching any new and positive results in either field.

CHAPTER III.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. II.

Taxation. — Social discord and mobs resulting from quarrels with the mother-country. — Social revolution combined with the revolt.

It is a difficult thing to collect taxes in any community where the industrial organization is low. Modern taxes strike the products in transfer; and the greater the number and variety of the relations between men with respect to goods, the greater the number and variety of possible taxes. If a man lives on his own farm, consumes his own products, makes with his own hands most of his necessary utensils, etc., and if his wife spins and weaves, he need have very few transactions with his fellow-men. Barter with his neighbours will suffice for the personal and mechanical services which he needs. It is only in case he wants tea, coffee, sugar, spices, metals, etc., that he goes into the world's market at all. The easiest way to tax him is by import duties on these last things. In the situation described he needs little money, and will have but little. If he is taxed on tea, sugar, etc., he can provide for the payment of the tax just as he provides for the payment of the

price, however that may be. The English, therefore, tried to use these taxes in the colonies.¹

The next way to tax such a community would be by taxes on land and on polls, or by excises on spirits, tobacco, or other domestic products which, not being universally produced in households, must pass through the market. These taxes, especially the first two, bring the pressure of taxation home to the tax-payer with great directness, and they call for the use of money. The mother-country did not try to use these taxes. If she had done so, it would have brought her authority into every household. The colonists never had any experience of her power or authority in any immediate and personal way. The colonies, however, always experienced great difficulty in raising revenue for their own internal affairs, and one of the reasons constantly given for paper money was the need of a medium in which taxes could be paid. Kalb reported that all the colonies were in debt after the seven years' war.² This made more taxation necessary than formerly. In 1766 Franklin, in his examination before the House of Commons, stated that there were taxes in Pennsylvania on real estate, polls, business profits, an excise on spirits, a duty on negroes, and some other duties.³ He said that the amount of revenue of Pennsylvania at that time was 20,000 pounds ster-

¹ Hamilton argued, in the "Federalist," that the best taxes for the United States were import duties and excises, especially the former, which he thought free from some unpopular features of the latter (Works, ix. 69, 124).

² Kalb, 291.

³ Franklin, iv. 162.

ling, and that there were one hundred and sixty thousand white persons in that province. This would give a taxation of sixty-two and one half cents per capita, or three dollars and twenty-five cents for a family of five, per annum.

The English then, in their attempts to get revenue from the colonies, met with very great difficulties in the nature of the case. They turned from the industrial organization to the operations which go through the courts, or require legal proceedings, and devised the stamp tax.¹ It was the best tax they could have devised for the case they had to deal with, and the purpose they had in view. The colonists were litigious. The stamp-act Congress alleged against the stamp tax that the freeholds were small and the transfers frequent; hence that the tax would be very burdensome. If there was to be a tax, that was just why this one would solve the economic difficulty of getting a revenue out of that community. The revenue expected from the tax was 100,000 pounds sterling.²

The methods taken by the colonists to resist this tax consisted in suspension of the operations which were to be taxed, refusal to pay debts to Englishmen, and a boycott on English goods; also a boycott of all persons who should accept the office of stamp distributor. Walpole says³ that the first three were effec-

¹ According to a note by Dawson (*The Sons of Liberty in New York*, 42), a stamp tax was proposed in New York, as a means of revenue, in 1734, and the project was renewed from time to time between that date and 1760.

² *Prior Documents*, 38.

³ *George III.*, 303.

tive. They were all, except the boycott of English goods, anti-social, and calculated to encourage disorder and a dissolution of civil institutions. If any one, or a number, chose to abstain from the use of English goods, in an effort to accomplish an object, no objection could be made to such a course. It might prove futile, but that was their affair. The suspension of all the functions of the courts was, however, quite another matter. Debtors found license, The experience of the advantage to them which could come from social disorder was not thrown away upon them. In 1768 John Adams noted the danger arising from this cause, but resolved to tell the people the whole truth and brave the danger. A party of debtors was forming out of these experiences.¹

The refusal to pay debts to Englishmen had the same effect. It was a welcome experience to a great many people that one could refuse to pay debts, and thereby win popularity and a reputation for patriotism. The riotous destruction of stamps and the coercion or abuse of the stamp officers were modes of mob rule. Those proceedings interested and occupied the idle and irresponsible people in the towns. It would never be very difficult to collect a crowd, for the fun of inflicting personal annoyance on some victim, but in those days people had a great deal of leisure. No business required the steady occupation to which we are now accustomed in almost every occupation. People took life easily. A little excitement was very welcome. The serious men also stood

¹ Adams, ii. 214.

back and allowed the mischief to go on for the sake of the cause. One is astonished at the whole behaviour of the representatives of civil order and authority in all these cases. They acted like tutors put, with inadequate authority, in charge of spoiled boys. We should to-day think any magistrate criminally guilty if he should act as Bernard and Hutchinson did when the latter were loaded with epithets of tyranny and oppression.

There was no police, and the militia either participated in the disturbance or sympathized with it. Consequently, when disorder broke out, it ran its course, or the sober people tried to persuade the others, or to give a turn to the affair which should direct the mob spirit in some harmless course.

The system of resisting the law by preventing anybody from accepting an administrative office under it was also a notable device which involved not a few social dangers. The correspondence of Ingersoll, the tax-officer at New Haven, with a committee of his fellow-citizens, was published in full. It shows the temper of this method of procedure. He was met at Wethersfield and forced to sign an abdication of his office; but he reserved the right to take it up again, if the efforts to secure a repeal of the law should fail, since it was no worse that he than anybody else should have the office, if the tax must be collected.¹

¹ R. H. Lee drafted articles of association for the citizens of Westmoreland, Virginia, against the Stamp Act, threatening undefined pains and penalties against any abandoned wretch who should contribute to introduce the Act. He established a

From the stamp-tax riots, then, must be dated a very positive relaxation of social order and growth of mob spirit. The excuse for the methods employed is, that no attention could be won in England in any other way. This excuse may stand, although it is doubtful how far the abuse of tax-collectors in America affected Englishmen. The social effect was, in any case, an incidental evil.

The destruction of the tea was another act which had no rational connection with the purpose in view. It was the destruction of the property itself, about which a tax quarrel was pending. It was an act of mob violence, and destruction of property. Its effect to secure an abolition of the tax was not apparent. The only excuse for it that could be made was that it was really an act of war, a first step in overt resistance to law, against which it was intended to employ all means, even military resistance. In that view, however, it ought to be regarded as an act of war, entirely outside of constitutional resistance, or any of the methods of peace and order, and ought not to be held up to our children as a laudable and glorious act in the heroic period of our history. It would be interesting to know how many times within a hundred

sort of *vehmgericht* for enforcing the articles. (Lee's Lee, i. 34.) A case is described of a Virginian who said that he would use stamp paper, and had accepted the office of stamp-collector. R. H. Lee summoned the associators, went to the house of this person, and coerced him to swear that he would not exercise the office, and to give up the paper, which was burned. (Ibid., 36.) See, in Life of Robert Morris, the case of the tax-officer at Philadelphia.

years that act has been quoted as a precedent by people who were engaging in some act of lawlessness.

The Boston Massacre, likewise, turns out upon cool examination to be anything but an incident to be proud of. If we should hear that some boys and street-idlers in the District of Columbia (which is taxed without being represented) had insulted a sentinel of the federal army on duty in Washington, had forced him to leave his post and call the guard, and that in the resulting *mêlée* between the soldiers and the mob, some of the latter had been shot, we should not regard the latter as victims of a "massacre."¹

The habit of resistance and of political quarrelling grew. To the modern reader the bickerings and quarrels between the governors and the legislatures very often seem factious on the part of the latter. The Massachusetts Assembly wrote to their agent, De Berdt, in 1768, in alarm at the proposal of an American episcopate.² Samuel Adams wrote to A. Lee on the same subject, in 1771, and justified his alarm by this piece of erudition: "The junction of the canon and the feudal law, you know, has been fatal to the liberties of mankind." Another subject of alarm was the court of probate.³ The Massachusetts Assembly, in 1767, in their message to the Governor, entered into an argument with him on the

¹ Prior Documents, 239; Kidder's Boston Massacre. In the Massachusetts Papers, 135, is a letter of Bowdoin and others, expressing a fear that a false report of the massacre might be sent to England, but their story is not given. See *Historical Magazine*, January, 1869.

² Prior Documents, 174.

³ Adams, ii. 284.

merits of certain acts of Parliament.¹ We should not think it a practical plan to force States to support United States troops, but we should certainly be very indignant with any State which should treat United States troops, shipwrecked on its coast, as Massachusetts treated British troops in that case.² The incidents of the growing trouble offer occasion at every step for reserve in approving the proceedings of the colonists. Burke said that the kind of books which sold best in the American trade was tracts of popular devotion, and next, law books. He quoted General Gage, that "all the people in his government are lawyers or smatterers in the law, and that in Boston they have been enabled by successful chicane wholly to evade many parts of one of your capital penal constitutions. . . . This study renders men acute, inquisitive, dexterous, prompt in attack, ready in defence, full of resources. In other countries the people, more simple and of a less mercurial cast, judge of an ill principle in government only by an actual grievance. Here they anticipate the evil, and judge of the pressure of the grievance by the badness of the principle. They augur misgovernment at a distance, and snuff tyranny on every tainted breeze."³

This is a very fair description of the case, only that it allows of an ironical or unfriendly interpretation, which might also be justified. One is often reminded, in studying these proceedings, of the faults of young

¹ Prior Documents, 127.

² Ibid., 236.

³ Quoted in Correspondence of George III., ii. 2.

lawyers; and it was a remarkable characteristic of the colonists that they were fond of hanging an argument on the remote and speculative inferences from a measure, or on the dogmatic deduction which they called a "principle." Hence their discussions had an extravagant and unreal character. Quincy's "Observations on the Boston Port Bill" are disappointing in this same way. One would like to know what he had to say about the destruction of the tea, speaking as a lawyer and responsible man, and how he would deal with the Port Bill as a penalty, directly connected with that action; but he goes off into a disquisition on general political dogmas, and when he touches on the issue, comes down to the technicalities of a town-meeting.¹ If men have absolute natural rights, then any regulation of those rights involves the possibility of abuse. This gives a very broad platform for political dissent and recalcitrancy.

Passing over all those incidents and doctrines which will not be useful to us further on, in connection with our immediate subject, a few words must be given to the principle or maxim, "No taxation without representation;" for this dictum may still be heard among us, and it is put forward as an absolute principle, having the sanction of revolutionary practice and profession. It is one of the formulas which came into use in the seventeenth century among the English Republicans, or opponents of the Crown, and was transplanted to America. It was aimed, not at the Parliament, but at the Crown. It meant that no

¹ Quincy's Quincy.

taxes ought to be collected when parliamentary institutions were suspended. It was a part of the fight against a king who tried to raise taxes by prerogative, without calling a Parliament.¹ It is a good illustration of the way in which political maxims, when they become stereotyped, change their contents. There always were whole classes of people who were not represented in Parliament, as there are such classes now among us. The dictum never meant that they could not be taxed. The dictum, however, as the colonists used it, exposed them to be answered in just this way, namely, on the historical and legal sense of their proposition. and it obscured to them and others their real grievance and their real demand. They never wanted to be represented in Parliament. They wanted self-government, and did not want to have their property taken from them at the will of another commonwealth across the ocean. They gained nothing by their alleged principle of the British Constitution. They would have gained much by a plain statement in their own language of their own case.

One inevitable effect of mob methods and lawlessness was that the people of established position were repelled from the movement of the whigs. With very few exceptions they became loyalists. In 1774 Gouverneur Morris was eager for a reconciliation. "I see, and I see it with fear and trembling, that if the

¹ In 1764 R. H. Lee tried to meet this contention by saying that the general intention of the dictum was that the people should be protected from all imposition.

disputes with Britain continue, we shall be under the worst of all possible dominions, — the dominion of a riotous mob.”¹ When the courts were closed in 1765, John Adams wrote: “Debtors grow insolent, creditors grow angry, and it is to be expected that the public offices will very soon be forced open, unless such favourable accounts should be received from England as to draw away the fears of the great, or unless a greater dread of the multitude should drive away the fear of censure from Great Britain.”² Thomson also wrote from Philadelphia that the courts and offices of government were all shut. “Numbers of people who are indebted take advantage of the time to refuse payment, and are moving off with all their effects out of the reach of their creditors.”³ In 1774 Adams wrote to his wife describing the terror and misery of a family visited by a mob. “These private mobs,” he writes, “I do and will detest. If popular commotions can be justified in opposition to attacks upon the Constitution, it can be only when fundamentals are invaded, nor then, unless for absolute necessity and with great caution.”⁴ In 1775 he was very much alarmed about the effect on the people of disrespect to the judges. He says the people rarely know what sets them in motion, or what the effect of their action will be. He feared that Judge Oliver might be tarred and feathered for taking the King’s salary.⁵

¹ Morris’s *Morris*, i. 4.

² Adams, ii. 155.

³ Thomson Papers, 7.

⁴ Adams’s *Letters to his Wife*, i. 13.

⁵ Adams, ii. 328.

He was very much dismayed when, upon his return from the Congress of 1774, an old client, whom he had several times extricated from difficulty, warmly congratulated him on the glorious work of Congress in once more suspending the courts. "Are these, then," writes Adams, "the sentiments of such people, and how many of them are there in the country? Half the nation, for what I know; for half the nation are debtors, if not more, and these have been, in all countries, the sentiments of debtors."¹ He falls back, for reassurance, on confidence in the majority.

The revolt of the colonies therefore was not simply a separation from Great Britain. It contained a social revolution within itself. This revolution was, on the whole, good in its effect. Every colony was under the dominion of a clique of pets of the Crown, or the proprietor, or under a coterie of families, which held together and controlled patronage. These cliques were obstructive. They held the offices, kept down rising merit, discouraged all new men, and restricted the growth of the colonies, lest that growth should undermine their position. Those families which had power, but did not share this feeling, became whigs. The Revolution, therefore, set free new and very vigorous social energies, which had before been repressed; and this was one great cause of the *elan* with which the country sprang up after the war. However, it ought always to be a painful thing to see social storms sweep away acquisitions of wealth and

¹ Adams, ii. 420.

social position.¹ It may be the fault of the sufferers. That has nothing to do with the loss to society, which sees some work lost which had been accomplished, and some acquisitions perish which cannot be replaced without new expenditure of energy, which, if the old had been kept, might have added something new. The great secret of social progress from the bottom of civilization to the top is to keep what we gain without set-backs.

The persons who became whigs, then, at the beginning of the Revolution were, as to the mass, those who had nothing to lose. That class included those who had something to gain. Those who had something to lose took the other side. There were, however, whole districts in which nearly all were loyalists; and Graydon says that the lower ranks of the people in Pennsylvania were not whigs in 1776.² He says that the opposition to England was aristocratic. In the middle and southern colonies this was generally true; that is, the people of education and wealth first knew what measures were being taken, and first began to set themselves in hostility to those measures. The men of those classes, therefore, throughout the colonies, who approved the measures adopted by Eng-

¹ Madame Riedesel mentions that the officers of Burgoyne's army were quartered in a house at Cambridge, Mass., one of seven formerly owned by loyalists who had lived here neighbours, in splendid mansions, with farms, gardens, and orchards, being in the habit of daily social intercourse. The war had forced them all to fly, and the places were left desolate. (Memoir, 195.)

² *Memoirs*, 34.

land, or held that the colonies had no grievances, were very few indeed. They formed no class. Hence the distinction of whig and tory came to be drawn according to the point at which different persons drew the line where the means of redress proposed were considered legitimate and expedient or not, and the mob methods weakened the cause by forcing many to the conviction that although the grievances were real, yet the perils of revolution were greater.

Hamilton wrote, in 1782, that half the people of New York were not whigs at the beginning, and that one third of them sympathized with the enemy at the time of writing;¹ but he had written to Jay, in 1775, that the whigs were in the great majority in New York City.² Greene wrote to Washington urging that that city should be burned. He said that two thirds of the property in it belonged to tories.³

Sabine's "Loyalists" gives one a very decided conviction that the loyalists included most of the educated and wealthy; and the best evidence goes to show that although many persons who began as whigs "went in," in the first years of the war, disgusted especially with the lawlessness which we are noting, the drift, after 1777, was the other way. Galloway, who of course was not an unbiassed witness, affirmed that not one fifth of the people sustained the Revolution from choice.⁴ His notion was that the plotters

¹ Works, viii. 69.

² Johnston's Jay, i. 41. Winsor has a long note on the proportion of loyalists (vii. 187).

³ Amer. Arch., v. 2, 182.

⁴ Examination, 7.

had raised an army, disarmed the rest, and forced them to accede.

On account of this social division, the Revolution had to bear the weight and odium of a set of persons who had been practising riot and lawlessness for ten years. The years 1774 and 1775 were spent by all in a transition from the schemes and hopes of reconciliation, to the conviction that independence was the only solution. Some reached that point a great deal sooner than others. In this period all the bonds of civil order were necessarily very much relaxed; and the agitation, which even the best were forced to carry on, gave a cover to the worst. In 1776, after independence was determined upon, it was necessary to reorganize the governments of the States, and to do this in the midst of active and unfortunate military operations. In the interval great power had been intrusted to local committees, who found themselves for a time in possession of irresponsible power; and to these committees most dangerous functions of disciplining tories, enforcing the association, and the circulation of the continental money, had been given, the effect of which we will now proceed to notice.

It is, however, already evident that all the circumstances of the period, 1765 to 1776, were highly favourable to the development of a lawlessness and recklessness which in a loose colonial society needed no encouragement at all;¹ also that there was one

¹ Hamilton, in the "Farmer Refuted," wrote: "That there have been some irregularities committed in America, I freely confess," and proceeds to apologize for them (Works, i. 149).

interest, the debtor interest, which had a strong motive to hope that, in some way, out of the commotion relief for them would come. We must add to this the current declamation about liberty, which was plainly calculated to heat the brain of all untrained men, who eagerly accepted a theory which seemed to mean that they ought to have their own way in the world. Graydon, who went through it all, wrote, when an old man: "Notwithstanding this almost unanimous agreement in favour of liberty, neither were all disposed to go the same lengths for it, nor were they perfectly in unison in the idea annexed to it. Wilkes had just rendered the term popular in America; and though perhaps there is not any one in our language more indefinite, yet the sense in which it was doubtless most generally received was that which brings it nearest to licentiousness and anarchy, since hallowed by the phrases of equality and the rights of man."¹ When the sober men of that day spoke of "liberty," they often, almost unawares, meant independence, for they meant freedom from restraints imposed by England. A relaxation of civil order and of the authority of law, together with the demoralization of debtors, seduced by a hope that through civil commotion they might escape from their contracts, were among the first domestic effects of the quarrel with Great Britain.

¹ *Memoirs*, 122.

CHAPTER IV.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. III.

Persecution of tories. — Outrages. — Spurious patriotism.

THE darkest blot on the history of the Revolution is the treatment of the loyalists. This revolution, no more than others, could run its course without proscription, persecution, and confiscation. As we have seen, opinion moved over from unanimous and enthusiastic loyalty, to the case in which a majority favoured independence, although it was probably a bare majority of the population of the thirteen colonies. If some did not advance so rapidly on this line as others, they were subjected to abuse. In any such political change there is a presumption in favour of what is, and against revolution or innovation. The abuse of the tories was not executed under martial law, or in the neighbourhood of the seat of war. If such had been the case, our judgment upon it must be different. If the majority had forbidden the minority to take up arms, or to give intelligence and aid, or to organize ; or if their stricter measures had been reserved for times and places where there was much at stake ; or if even a regular tribunal had been charged with the duty, even though it might be a military tribunal, — the case

would have been far different. If the whigs had been exasperated at persons who were by turns combatants and non-combatants, some extreme measures might have been excused. But the case was that the proscription was made general. Tories were formally hunted by detachments. They were exposed to the most cruel and humiliating personal abuse. They were punished for opinions, or at most for words. The punishments were in the hands of utterly irresponsible persons or committees.

One thing which forces itself on the notice of a student of a period like this is that nobody ever starts out with malice and set intention to perpetrate a gross outrage. When the truth of the matter comes out, it is found that there was a series of antecedent and retaliatory outrages, which led up to the great one which shocks everybody as inconceivably wicked. For instance: The murder of Huddy was one of the very worst outrages of the war. It is, however, possible to trace a whole series of retaliations between the whigs and tories in East Jersey, Staten Island, and Long Island, throughout the war, which embittered the parties against each other until this final outrage capped the climax.¹ The burning of Falmouth was an outrage which it is hard to understand; but it seems that in January, 1774, a subordinate custom-house officer at that place, for conduct in the line of his duty, for which he, as a subordinate, was not at all responsible, but which was in the administration of the obnoxious admiralty regulations, was most

¹ See Moore's Diary, i. 182, 198; ii. 255, 322.

inhumanly tarred, feathered, and otherwise abused.¹ The suggestion at once presents itself that the latter outrage furnished a motive for the former. Tryon's descent on the towns along the Sound in Connecticut, up to New Haven, connects itself irresistibly with the exploit of Sears and his party, who went to New York to destroy Rivington's press.² The Wyoming massacre was preceded by long conflicts between whigs and tories in that region.³ Brandt's expedition was alleged to be in revenge for the invasion of Canada.

In all such cases the question is, Who began it? That is very difficult to learn, because the beginnings, in most cases, were trivial. It seems certain that the whigs began the acts of violence, as between them and the tories. They spoke later about malignant tories; and the tories did manifest a very malignant temper. It is not strange. Inasmuch as there was no declaration of war, there was no moment after which it could be said to be treason to aid the enemy. Inasmuch as there was no Union until March, 1781, and the State governments were reconstructed one after the other during 1776 and 1777, it would be difficult to set a time after which a man was guilty of rebellion, if he resisted the American military operations. Congress, which had no constitutional authority at all, passed a resolution, Oct. 6, 1775: "that it be recommended to the several provincial assemblies, or conventions, and councils or committees of safety, to arrest and secure every person in their respective

¹ Prior Documents, 254; Almon, 1776, part iii. 89.

² Moore's Diary, i. 173; ii. 190.

³ Ibid., ii. 72.

colonies whose going at large may, in their opinion, endanger the safety of the colony, or the liberties of America." The lack of constitutional authority was of no importance for the political and military work of Congress, but it may reasonably be taken into account when their acts affected personal rights and liberty. March 14, 1776, Congress passed a resolution for disarming tories, which, as John Adams said, "left all the powers of government in the hands of assemblies, conventions, and committees, which composed a scene of much confusion and injustice, the continuance of which was much dreaded by me, as tending to injure the morals of the people and destroy their habits of order and attachment to regular government."¹

Long before this, however, the work had begun. Feb. 27, 1775, Dr. Clark was ridden on a rail at Hartford, and cruelly injured. The doctor who succoured him was threatened.² In March a writer in Boston addressed the Provincial Congress of Massachusetts in a memorial, five pages in length, in which he gives a list of outrages, with names and places. Some of them are Ku Klux outrages.³ In May, 1775, the tories of Worcester were disarmed and forbidden to leave town or to meet together.⁴ In June two men were tarred and feathered in South Carolina for "indecent and daring behaviour."⁵ October 6, occurred the case of Hunt and Kearsley at

¹ Adams, iii. 34.

² Moore, i. 26.

³ Moore, i. 37.

⁴ *Ibid.*, 33.

⁵ *Ibid.*, 90; Drayton, i. 273.

Philadelphia. Hunt was a lawyer who had undertaken the case of a man from whom a piece of linen had been sequestered under the association.¹ He was carted through the streets, accompanied by a drum, and followed by a rabble. Dr. Kearsley had written some letters which were intercepted. They were said to misrepresent public persons and public proceedings. When the Hunt procession reached his house, he denounced it. Thereupon he was put in the cart, and Hunt was released in a submissive frame of mind. He went to Barbadoes, became a clergyman, and afterward went to England. He was the father of Leigh Hunt. Dr. Kearsley was imprisoned at Carlisle, where he died in November, 1777. Graydon, who saw Kearsley carted, says: "What were the feelings of others on this lawless spectacle, I know not; but mine, I must confess, revolted at it. I was shocked at seeing a lately respected citizen so cruelly vilified, and was imprudent enough to say that, had I been a magistrate, I would, at every hazard, have interposed my authority in suppression of the outrage."² Jan. 3, 1776, Congress passed resolutions against the people of Queens County, New York, for voting against sending deputies to the Convention of New York. They were put out of the protection of the united colonies. Trade and intercourse with them was to cease. No one of them was to be allowed to travel or abide in any part of the colonies without a

¹ Amer. Arch., iv. 3, 470.

² Memoir, 126; Moore, i. 148; Marshall, 39, 143; Amer. Arch., iv. 3, 470.

certificate from a convention, or committee of safety of New York, that he is a friend of the American cause, and not one of those who voted against sending deputies. Colonel Heard of New Jersey was ordered to take five or six hundred men and march to the west side of the county, and Colonel Waterbury of Connecticut with the same number to the east side, and disarm all who voted against sending deputies ; also to arrest the principal men, whose names were appended. February 8, the county having elected deputies, the interdict was raised, provided a majority of the inhabitants would sign the association. For long afterward that district was the scene of retaliatory outrages between the two parties.¹ In 1776 there was a real civil war in South Carolina between whigs and tories.² The battle of Moore's Mountain, in North Carolina, was fought between two armies of the domestic factions.³ Sept. 14, 1776, the Pennsylvania Committee published an order for punishing all who should speak or write against the United States in order to obstruct the measures for securing independence.⁴

In April, 1781, Marshall mentions in his diary that he saw at the barracks, in Lancaster, five or six hundred prisoners, and with them one hundred refugees or tories, "whose appearance was the picture

¹ Onderdonk's *Revolutionary Incidents of Queens County*, 43 *et seq.* ; *Memoirs of the Long Island Historical Society*, ii. chaps. ii., iii., iv. See especially page 85.

² *Laurens Correspondence*, 28.

³ *Caruthers*, 110.

⁴ *Marshall*, 92.

of human poverty and want, both in clothes, flesh, and meagre looks."

Speaking of the Quakers banished from Northumberland May 18, 1780, Reed says: "These are really distressing cases, when suspicion is to stand for proof, and necessity makes the law. I am fearful that an entire discharge will have a very bad effect, and yet it seems a stretch of power to hold them in confinement when no cause is shown."¹

Nov. 27, 1777, Congress recommended the States to confiscate and sell the property of tories, and invest the proceeds in loan office certificates, to be appropriated as the States see fit. Very large confiscations took place, although in the end a great deal was restored. One of the most singular things about all this matter is that so few, if any, leading whigs made any protest against it. Hamilton wrote in 1777, approving of the rules about tories adopted by the New York Convention. "Lenity and forbearance have been tried too long, and to no purpose. . . . But in dispensing punishment, the utmost care and caution ought to be used." Power to do it should be trusted only to wise hands. Tories should either be made harmless, or won by clemency.² April 29, 1777, he wrote to Livingston that Washington desired that examples should be made of some of the worst of the disaffected.³ At the peace Franklin was especially fierce against the tories.⁴ At that time Adams said that if the States should indemnify the tories "it

¹ Reed's Reed, ii. 199.

² Works, vii. 486.

³ Works, vii. 490.

⁴ Dip. Corr. Rev., vi. 491.

would seem an implicit concession of all the religion and morality of the war.”¹

The specimens here given are only a few from those on record of the outrages on the tories, but they may suffice.² Some are too horrible for belief.³ A long list of tory outrages could also be collected.⁴ The whole subject is too painful, but it seems necessary to have a few facts before us in order to realize the social disorganization which attended the Revolution. The Americans themselves were in a state of rebellion, and those who adhered to the old government were, by construction, in rebellion against them. Graydon says that in the summer of 1777 the country

¹ Dip. Corr. Rev., vi. 443.

² See Dawson's "Westchester County" for a long narrative of them. The Proceedings of the Provincial Congresses of New York and New Jersey, and of the Council of Safety of the latter State, bear witness to the spirit of the persecution, the nature of the alleged offences, the character of the evidence, and the sufferings of innocent men and women. Onderdonk's Revolutionary Incidents of Queens County, also of Suffolk and Kings County, and his "Queens County in Olden Times" contain numerous cases of outrage on both sides, and prove the social dissolution which existed.

³ Saint John de Crevecoeur (i. 322) tells a story of a man who was hanged to the verge of strangulation on a charge of giving a night's lodging to a person who had shared in the Wyoming massacre, but it is permitted to believe that the story is somewhat embellished. See also the story in Madame Riedesel's Memoirs, 196.

⁴ Caruthers, 159 *et seq.*

⁵ In Kemble's Journal (N. Y. Hist. Soc. 1883, p. 62) is a very ingenious antithetical statement of the attitude of the Americans toward the English on one side, and the tories on the other.

was full of majors and colonels, mostly bar-tenders, brimful of patriotism, which meant to hate and persecute tories.¹ He implies that the militiamen stayed at home, talked grandly, persecuted tories; and that such men got all the glory.² The essence of the cause for which the whigs were contending, he says, was freedom; "and yet all the freedom it granted was, at the peril of tar and feathers, to think and act like themselves." He had been in the army.

We turn next to the measures adopted for making good the resistance to Great Britain. The weakness of these, and the effect of the mistakes involved in them on the people, will set before us other social and political features of the time which enter into our field of study. We are seeking in this period of convulsion the germs and explanations of the phenomena of the later period, when American institutions and the American political system were taking shape. If we can get an accurate and comprehensive idea of these matters, we shall be able to understand with ease the subsequent developments. We have already seen that there were powerful influences at work to educate the American people in anarchism.

¹ *Memoir*, 283.

² *Ibid.*, 306.

CHAPTER V.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. IV.

Defects of the Measures for coercing England and carrying on war. —
Commercial War. — The second impulse of common sentiment. —
Continental Currency.

It does not appear that the Americans, in 1774, expected an armed collision with Great Britain. They believed that their non-importation agreement, in 1765, had been very effective to secure the repeal of the Stamp Act. They had tried, in 1768, 1769, and 1770, to unite in other agreements of this kind, with only very slight success, but they had unabated confidence in the efficacy of the device. They believed that a congress to secure a real hearty co-operation of all the colonies in this measure would force attention and bring redress.

The faith in commercial war is very persistent. It is by no means dead yet. Commercial war may be used either as an adjunct of military war, or to supplement military coercion, or, without going to war, to force concessions in tariffs and prohibitions. In every case it is what Daniel Webster called it: "Per-
nicious as to ourselves and imbecile as to foreign nations." The retaliation never works as expected. All experience shows that the effect of retaliation is

not to make the other party recede, but to do one of two things. Either he does not know that retaliation is intended for a wrong previously done by him, or he does. In the former case he regards himself as the victim of a fresh and unprovoked wrong. In the latter, his pride and stubbornness are aroused not to let himself be coerced. In either case he does not recede, but answers with a new attack, stronger than his first one. Hence it is in the inevitable philosophy of retaliation that it leads on from bad to worse, and produces destruction and loss at every step.

Tariff wars, embargoes, non-importation laws, and the whole series of devices of this character prove over and over again the statement just made. They are almost utterly ineffective for the purpose in view. Then, again, it is necessary in them always to hurt one's self a great deal in order to hurt the other party a little. All trade goes on for mutual advantage. It is a complete mistake to regard trade as a favour done by one party to another, or as a possession or property. A merchant treats his customers as persons who have done him a favour. This is by courtesy of intercourse, or because he wants to attract the customers to himself from a rival. He also regards his customers as a sort of clientage, attached to himself, so that the good will of the business has the character of a possession or property. It is from the extension of these notions to the entire market that the notion grew up that the trade of nations is a property of nations, and that buyers do favours to sellers.

It is evident, however, that the merchant's notions

just mentioned are personal only. As soon as we take in the whole market, the relations which are personal to him disappear. This fallacy is one against which we must always be on our guard when reasoning from individuals to the society. Some relations accumulate in going up from the individual to the society; others cancel. When we view the market, there are no buyers and sellers, but persons exchanging with each other. Each one is giving and taking. The advantage is mutual. No one is under obligation to another. Every obligation is discharged and finished when an exchange is made. The operation is also entirely impersonal. Exchanges are made in immense numbers between people who never meet, and never know anything about each other. Even the personal relation, in the individual cases, when it comes to the surface, rests properly on nothing but mutual interest. If A makes his exchanges with B rather than with C, it is properly only for the reason that his interests are better served by B than by C. If that was not the case, he would be making presents to B all the time. If then he transfers his exchanges from B to C, out of anger or favour, he must sacrifice the advantage which he had with A, and he will be making presents to C. If he goes without what he used to obtain from A, he lowers his comfort, and exposes himself to suffering. If we take the other side, and consider the case of a man who refuses to *sell* his products to somebody, out of malice or hostility, we see that he may expose the latter to suffering, but he must recede from the industrial or-

ganization. He has to face the question, what he is here for, and how he hopes to get his living. Perhaps the grandest case of delusion from the fallacy of commercial war which can be mentioned is the South in 1860. They undertook secession in the faith that "cotton is king," and they had come to believe that they had a means to coerce the rest of the world, by refusing to sell cotton. As soon as they undertook secession, their direst necessity was to sell cotton. Their error came down to them in direct descent from 1774, and Jefferson's embargo.

These are the fallacies which are in any boycott, big or little. There is a self-contradiction in the device. We are here to exchange with each other. We are absolutely dependent on mutual services. It is social suicide to resolve that we will not render them. For these reasons the commercial war undertaken by the colonies in 1774 was futile as to its purpose. It should, however, be noted that if we count the Albany meeting of 1755, to concert plans against Canada, as the first throb of common interest and united action between a number of the colonies, then the stamp-act Congress was the second and more powerful one, and this Congress of 1774 was the third. It showed by comparison an immense increase in vitality. Franklin said, in 1760, that the colonies were not able to unite against the mother-country. In proof of it he referred to the meeting of 1755, at which he said that the only union which did take place was due to the authority of the crown.¹ In the

¹ Franklin, iv 42

two later congresses the colonies had at least reached the point of being able to adopt a measure of spontaneous union.

It was common interest and common danger, not sympathy and affection, which drew them together. The latter sentiments were conspicuous by their absence. It is one of the points which we have to note here, that every step toward union was forced by some major necessity which was great enough to overcome the separatist tendencies which all the sentiments and prejudices contributed to strengthen. The Congress of 1774 sat only a few weeks. Few if any had any idea that it would stand as the first of the sessions of a great representative and legislative body of a great State composed of the thirteen colonies. It was nothing more than a conference to organize the commercial war. If their petition had been heeded in England, it would have stood as isolated as the stamp-act Congress.

The articles of association were a bond of voluntary agreement. Besides the non-importation and non-exportation agreement, they included a non-consumption agreement, a renunciation of luxury and amusement, and an attempt to regulate prices so as to prevent effects on prices which were obviously to be apprehended from the other measures.

In all common-sense and right reason, if the colonies had expected to have war with England, they should, instead of breaking off trade with her, have removed any and all possible obstacles to trade with her. That would have been boldly flying in the face

of all the received notions, but it would obviously be the only wise course. When the war began, they had scarcely any powder or lead, few guns, little cloth or leather, or means of making them, and were in general almost destitute of supplies for an army. If these things were to be got cheaper and better in England than anywhere else, there was the place to buy them. Instead of thinking of the commercial profit which English merchants would gain (which, according to the notions of the time, filled their minds), they might better have regarded it as a sort of spoiling the Egyptians, to get from England the cheapest and best supplies with which to fight England.

Instead of refusing to sell, they should have sold all they could; and if England was the best market, they should have sold there so as to gain as much as possible, all of which would be strength for war. The reason why they did not do this was, that they regarded the commercial war as an independent means of coercion without war, and because the minds of men were entirely filled then, in regard to commerce, with the notion that it was a power and a property in some sense beyond the convenience served by it in the supply of wants. This commercial war, however, like very many others, proved only a delusion as a means of avoiding war; it only introduced war. Instead of coercing the English Government it was taken as an act of rebellion; and in February, 1775, an Act of Parliament was passed to forbid New England to trade anywhere except to Great Britain, Ireland, and

the British West Indies, and to exclude the same colonies from the fisheries of Newfoundland. This was extended in March to all the colonies except New York, Georgia, and North Carolina. The first two had not accepted the association, and it was thought that the third would not.

Thus the response to the American resolve not to trade with Britain or her dependencies, was a prohibition to trade anywhere else. On the supposition of peace and continued connection with Great Britain, which was the standpoint of the association, the commercial war had issued in a deadlock.

In its internal aspects it was no more fortunate. The association was not adopted by Congress without developing very serious dissensions and local jealousies. In South Carolina, the rice exception came near dividing the State, and may have had a share in the actual armed division which arose there.¹

It never was enforced. The trade went on between England and America, but through Holland and the West Indies. The money which Laurens borrowed of France in 1781, was spent in Holland, to the great dissatisfaction of the French Government, and, according to Lord Sheffield, for English goods.²

The non-consumption agreement in the association was a different matter. If the colonists really chose to abstain from certain articles of luxury, at a time of solemn undertaking, it might be very honourable and useful to do so, but unfortunately the attempt was made to enforce this by those who wanted to do it

¹ Drayton's Memoirs, i. 168.

² Observations, 10.

against those who did not. Also the restriction of prices was a matter of inevitable tyranny.

The enforcement of these measures was intrusted to local committees with consequences which we shall note.

After the battle of Lexington the scene changed. The case was then one of armed conflict. Never was a war undertaken, and never did a people find themselves at war, if that statement fits the case better, so illy prepared. Never was a contest carried on by means so ludicrously proportioned to the enterprise. It is possible to speculate as to the probable results, if the Americans had made no military preparations, and had simply waited for the English to wear themselves out in a struggle with passive resistance, or if the Americans had carried on an energetic war, supported by adequate organizations of army and finance. They did neither; and the result was that the enterprise and the apparatus were constantly in violent, and, if the matter had been less serious, ridiculous, contrast with each other.

Instead of organizing a conscription, or an adequate militia organization, the recruitment was left to a volunteer system with extravagant bounties, which exhausted the pecuniary resources without putting them at the disposal of the Congress. Instead of laying taxes, taxes were really reduced, for the Congress got none, and Great Britain had formerly obtained seventy-five or eighty thousand pounds.¹ The real reliance was on paper money. Of this the thir-

¹ Adams, ii. 363.

teen colonies which revolted had all made use. They were all familiar with it. It was a discovery of theirs, and the world has never yet understood that discovery at its full value and true significance. They were themselves far from understanding it. It was like a genie in the Arabian Nights, which could be evoked, but how it would behave they were by no means sure.

The scheme of the continental paper was by no means bad financially. It was proposed by G. Morris in the New York Congress, and by that body transmitted to the Continental Congress.¹ By the Resolution of July 29, 1775, each colony was to make its arrangements for taking in its share of the notes issued by Congress in its own way. The proportion of the total issue which it fell to the duty of each colony to redeem was allotted according to total population on the best estimate of that which could be made, and subject to ultimate adjustment. For instance, out of a million dollars the share of New York was \$80,000. If Congress paid out a million dollars in notes, which passed into circulation in all the States, including New York, that State was to lay taxes to the amount of \$80,000, which would be payable in the notes. This would bring \$80,000 into the State treasury, where they could be burned. Congress could then issue more, which would follow the same course. As long as it was kept up, Congress, which had no power to tax, could use the State power to tax, so as to reach the people. The notes also

¹ Sparks's Morris, i. 38.

would be cancelled so as to keep down their amount. The device was therefore what they called "anticipations" at that time ; and it was a very ingenious adaptation to the combination of States, of a device which had been used in the States before.

As the notes bore no interest, the interest paid by a community which used them for the "advance" of the year's revenue was very heavy ; but it was concealed, and they never knew it. The device was set in operation with one mistake ; and although there was no important financial blunder in it, there was a fatal political blunder, for the paper-money difficulty is always political, not financial. The mistake was that the time set for the States to take in this first issue was not within the year, but in four instalments, — on the last day of November, 1779, 1780, 1781, and 1782. The motive of this plainly was to make it easy, and it was probably expected that the war would last only a year or two. The real effect was that there was an immense inflation before the time set for the first redemption was reached.

The political blunder was that the States immediately saw that they had given to Congress power to levy taxes. On the scheme Congress could decide, in its good pleasure, what amount to issue ; and each State was held to take care of the quota assigned to it, whatever that might be. It was useless to hope that they would do that. The spirit which animated them was very different from that which would be required by that arrangement.

The first issue was made on the "pledge of the

colonies." Later the current phrase became that "Congress pledged the faith of the continent." That phrase was used until, considering what it ought to have meant, and the solemnity with which it ought to have been used, it was a scandal. They appeared to be ready to get anything on credit, and to promise anything by pledging "the faith of the continent."

The amount issued in 1775 was five million dollars, and in 1776 nine million dollars. The current assumption at the time was that the specie value of the circulation when the war broke out was thirty millions. This was too high. P. Webster, reckoning from the rate of depreciation, put it at twelve, and later at four. The States were issuing very largely at the same time, and the computation is probably impossible. Depreciation was first officially acknowledged in January, 1777. As it was always understated, it probably began earlier.

In the first two years, then, Congress had administered this device very cautiously. When the depreciation began, they became more reckless. As the depreciation went on, they set the opinion of the country that depreciation was unnecessary, that it was a result of malice, that it was brought about by monopolists, speculators, forestallers (persons who bought up to hold for a rise, although the old sense of the word was, one who went out to meet goods on their way to market and bought them before they were exposed in the market), and engrossers (persons who bought large amounts, to win a monopoly in the market) ; furthermore, they adopted the opinion that

depreciation could be prevented by police regulations to offset these devices, by legal-tender laws, and by fixing tariffs of prices.

This brings us to the point of interest to us now in connection with our subject. The administration of the laws against tories, and in support of the association, and of the laws to enforce the circulation of the continental paper money was intrusted to committees of safety or inspection.

CHAPTER VI.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. V.

Tyranny of committees. — Executive committees of Congress. — Ill effects on military and financial administration. — Factions in Congress. — Factions among foreign representatives.

GORDON represents the committees of correspondence as having taken their rise in an effort to show that Hutchinson was wrong when he represented the whole trouble as resting only with a few busybodies. The intention was to unite all who were dissatisfied in a way to make their number and importance evident.¹ These committees began to be formed anew in 1773. They were very useful and effective in sending information, and in bringing about sympathy and union. The committees of correspondence transmitted the news of the battle of Lexington from Wallingford, Connecticut, to Charleston, South Carolina, in seventeen days, by expresses and relays.² In view of the lack of facilities for the transmission of intelligence, and the great need of transmitting it in order to develop community of feeling and interest, these committees were very important.

They seem to have set the example for other committees which undertook the work of police and admin-

¹ History, i. 312. Dawson claims prior invention for New York; namely, Oct. 18, 1764. (*Sons of Liberty*, 60 *et seq.*)

² Drayton, i. 276.

istration, either against the old governments or in the interval between the old and the new. The committee at Philadelphia caused Hunt to be carted in August, 1775.¹ On the 6th of October, 1775, they sent to Chester to arrest a person supposed to be on his way to Europe with letters. Such letters were brought back, opened, and being, in the opinion of the committee, "calculated to inflame the minds of people in England against the colonies in general," three of the writers were arrested and imprisoned. Dr. Kearsley was one of these. On the 7th they arrested more persons with letters. Congress ordered these prisoners turned over to the committee of the State.²

On the 10th of June, 1776, the same committee arrested a Jew for cursing Congress; but being somewhat abused, he informed against another who, he said, had instructed him in those points. The mob went to the latter's house. He ran away. They injured his house and property.³ In June Congress, in order to limit mob violence against tories, resolved that no one should be molested in person or property unless by an order of Congress, or a convention of the colony, or a committee of safety.⁴ In July the Philadelphia committee appointed a sub-committee of secrecy to examine all inimical and suspected persons.⁵ In that month the committee suspected a Mrs. Arrall, who was about to leave for New York, of

¹ See p. 57.

² Marshall's Diary, 39, 45, 48.

⁴ Cong. Journ., ii. 212.

³ Ibid., 76.

⁵ Marshall, 81.

carrying on a correspondence with the enemy. They arrested her and brought her before the committee. It appeared that she had only been guilty of some unguarded language.¹ On the 4th of September William Allen declared that he would shed his blood against independence. This led to an altercation with John Bayard. A complaint of Allen was sent to the committee. He belonged to the leading family in Pennsylvania, which was entirely broken up and ruined by the war. In the same month that committee was dissolved.² In 1777 a person writing to Laurens from Georgia, complains of the extravagance and lawlessness of the whigs. He says that the community is ruled by tavern meetings and "nocturnal societies."³ In July, 1777, a new society was formed in Philadelphia to help in compelling everybody to take the oath of allegiance or leave the State. Graydon mentions a Quaker who was nearly ruined by the patriots, who would take a horse or a cow, sell it for taxes, and never give him the difference.⁴ Special taxes and exactions were quite generally laid on tories; and as the Quakers would not take up arms, and assumed, for the most part, an attitude of neutrality and indifference, they had a great deal to complain of.

In March, 1775, a county committee in New Jersey published a man for drinking tea.⁵ In September, 1775, a man was before the Philadelphia committee for denying their authority with regard to some tea.

¹ Marshall, 86.

² *Ibid.*, 91, 93.

³ Laurens Correspondence, 39.

⁴ *Memoir*, 325.

⁵ Marshall, 15.

In the same month the committee fixed the amount of salt to be sold to each county out of a lot which had apparently been confiscated.¹ Marshall himself, having moved to Lancaster, was informed by his son that the price of sugar was rising. He hastened to buy as much as he could of his neighbours in Lancaster before they heard of it. He does not appear to have noticed that he was forestalling.² In August, 1776, some women at Fishkill, New York, seem to have thought that they would be their own committee. They seized some tea which was held at a high price, and gave the continental tariff price for it.

In 1779 Congress seemed to become affected with the recklessness of bankruptcy. The issues were enormous, and the depreciation went on with great rapidity. The faster this movement ran its course, the more extravagant were the attempts to stop it by force. In May a meeting was held at Philadelphia, presided over by Mr. Roberdeau, at which he made a speech. He said: "The way to make our money good is to reduce the prices of goods and provisions. The tax that has been laid upon us by monopolists and forestallers within these six months past, for it may justly be called a tax, amounts to more money than would carry on the war for twelve months to come." The next day a committee which had been appointed at that meeting set a tariff of prices.³ A cargo arrived consigned to Robert Morris. The

¹ Marshall, 90, 91 ; *Amer. Arch.*, v. 3, 185.

² Marshall, 120.

³ *Penn. Packet*, May, 1779.

committee waited on him to see if he would comply with the tariff. He replied that the goods were for the French army.¹ May 31, this committee published a set of rules, but they declined to establish or execute punishments. "After having ascertained facts, they will leave such persons to make their peace with the public the best way they can, unless they [the committee] are desired to interfere." Marshall mentions cases under these regulations in which goods were stopped while being carried out of the city to evade the rules; also cases in which the price of boxes, casks, etc., was raised, although that of the goods was not. Flour was also smuggled out covered with earth. "To such mean shifts are the disaffected driven, since the committee has been elected," says Marshall. He mentions a committeeman who, although elected, had never served, and who charged more than the tariff. When expostulated with, he replied that he would sell at his own price or not at all. "The committee were satisfied that he was a friend of his country only so far as his interest led him."²

Marshall mentions in his diary, in January, 1776, a case of a hatter who refused paper money. He was remanded under censure for a week to think it over. Two similar cases are mentioned the next day. In December, 1776, Rush wrote to R. H. Lee that when Howe approached Philadelphia the people refused continental money. Putnam produced only a temporary remedy by imprisoning them and declaring the

¹ Penn. Packet, July 8, 1779. ² Marshall, 218, 222.

debt void. Those who had goods refused to sell, and creditors refused to give up the bonds, or kept out of the way when continental money was offered. He proposes that Congress shall recommend the States to declare the debt forfeited, and fine the creditors severely for refusing the money. "This will be more effectual than imprisonment, which, from becoming so common for tory practices, has now lost its infamy. . . . I tremble every time I think of the danger of the further progress of the refusal of our money."¹ Marshall mentions a case of a mortgage in which record was made of a tender of continental money and refusal of the same.² In November, 1776, he mentions a case where a man was precluded from all trade and intercourse for refusing the paper.³

In all this struggle the constant cry was that credit ought to be maintained, and that it was criminal not to help support credit. Here we have the notion that credit is some sort of successful humbug. It is a notion of frequent recurrence. It is believed that if people will only agree to affirm that something is true which they know is not true, they can get just the same effect as if it were true. Credit, however, is, above all things, the truth. Falsehood kills it. It has no relationship with swindling or confidence operations. The effect of all compulsion is to excite distrust and doubt. It suggests to the observer that truth is not what the pretence seems to be. The truth, however, is what he wants, espe-

¹ Lee's *Lee*, ii. 160.

² *Diary*, 95.

³ *Ibid.*, 101.

cially if he really possesses anything which he can lose. Therefore his faith is repelled, and credit is destroyed. Credit is belief in the truth.

The committees did not confine their regulation of things even to the tories, the association, and the paper money. On the 24th of November, 1775, it was proposed to hold a ball in Philadelphia at a tavern. It was expected that Mrs. Washington and Mrs. Hancock would be present. The city committee voted that there ought to be no ball in those troublous times. They visited Mrs. Washington, and asked her not to attend. She thanked them, and said that she would not. Otherwise it had been threatened that the tavern should be attacked.¹

We have, then, ample evidence that these irresponsible committees exercised a great tyranny, and that they helped to educate people to unconstitutional methods. P. Webster wrote about them, in 1790, that it was an obstinate delirium, in the war time, that the credit of the continental money could be sustained by compulsion. "This ruinous principle was continued in practice for five successive years, and appeared in all shapes and forms, — that is, in tender acts, in limitations of prices, in awful and threatening declarations, in penal laws with dreadful and ruinous punishments, and in every other way that could be devised, and all executed with a relentless severity by the highest authorities then in being, — namely, by Congress, by Assemblies and Conventions of the State, by committees of inspection (whose powers in those

¹ Marshall, 52.

days were nearly sovereign), and even by military force; and though men of all descriptions stood trembling before this monster of force, without daring to lift a hand against it during all this period, yet its unrestrained energy ever proved ineffectual to its purposes, but in every instance increased the evil it was designed to remedy, and destroyed the benefits it was intended to promote. . . . Many thousand families of full and easy fortune were ruined by these fatal measures, and lie in ruins to this day without the least benefit to the country, or to the great and noble cause in which we were then engaged." He writes this for the benefit of the financiers of future generations.¹

If we turn now to another set of facts, we may see what were the needs of the country which forced themselves on the attention of leading public men.

It is easy to see, even in the superficial facts of the case, that what the United States needed was an adequate organization. This is the fact which is developed by the whole history of the Revolution. There was an exceedingly low social vitality. The organs of the state did not respond quickly to stimuli. Those who carry back to that period modern ideas cannot understand that the social movement could have been so sluggish. If we realize how sluggish it was, we can hardly understand how it was possible to accomplish anything. There was no state of the United States, properly speaking. The Union had no proper organs; it started on a burst of spontaneous

¹ *Essays*, 128.

enthusiasm. As long as that lasted, the authority of Congress was respected and its orders were obeyed, out of good will, although it had no authority at all by any constitution. It is, indeed, very remarkable what high respect Congress enjoyed for the first three years. Before the Articles of Confederation were formed, which gave Congress constitutional authority, the burst of enthusiasm had long worn itself out.

Congress made the great mistake at the beginning of not sitting in open session. Hutchinson says that opening the debates of the Massachusetts Assembly had a great effect to educate the people to "sedition."¹ The Journal of Congress was published, but in a way to have no popular interest and win no attention.² If the debates had been open, it would have been a powerful means of educating the people, keeping them informed, and making them ready to respond to the public needs. There was no newspaper press suited to build up and sustain a true public opinion, or maintain an interchange of ideas and information between the different States. The newspapers were strictly local. They depended on private correspondence for news, and on volunteer essayists for discussion. The lack of a true newspaper press explains the popularity of Paine's "Common Sense." It did just what a good modern newspaper would

¹ History, iii. 166.

² A gentleman wrote to Robert Morris, in 1777, from North Carolina, that he wished the journals of Congress might be published every day and scattered through the continent. (Letters to Robert Morris, 428.)

do, — crystallize ideas. Hamilton, in 1783, tried to have the debates of Congress made public,¹ and he was seconded by Wilson;² but they were not able to bring it about. Hamilton wanted publicity on financial topics, if on nothing else. As long as Congress was printing paper money and giving it out, it retained its power. Instead of drawing money from the people by taxes, we find Congress giving out money to the States during 1777 and 1778. It had no real money. It was using the printing-machine. Until that resource was exhausted by depreciation, it had the appearance and effect as if Congress had had a magazine at their disposal. Franklin wrote, in 1779: "This effect of paper currency is not understood on this side the water, and indeed the whole is a mystery even to the politicians, how we have been able to continue a war four years without money, and how we could pay with paper that had no previously fixed fund appropriated specifically to redeem it. This currency, as we manage it, is a wonderful machine; it performs its office when we issue it; it pays and clothes troops and provides victuals and ammunition; and when we are obliged to issue a quantity excessive, it pays itself off by depreciation."³ He ought to have added, "and leaves us utterly helpless when the process is ended."

Such was the effect on Congress. Their prestige declined very rapidly in and after 1779. They could

¹ Madison Papers, i. 341.

² Journ. Cong., viii. 184.

³ Franklin, viii. 328.

not then adopt any real adequate measures, because they could not win confidence again. Before the Articles of Confederation were adopted, they were only fit to be superseded.

In their system of administration Congress began with a town-meeting plan of executive committees. They were under the dominion of a number of pernicious prepossessions, some of which had been inculcated by the notions of the last ten years. They were afraid of a one-man power. They held personal, provincial, and sectional ideas.¹ They were afraid of an army. They were afraid of the States. A feature of the times was an over-fondness for popularity. There was always a lion in the way. They did not seize upon their chances with intelligent energy. They seem to have gone upon the doctrine that nothing should be done against which any objection could be raised, and that the duty of a good citizen was, not to throw himself with all his might into the great business on hand, but to raise objections. John Adams says that they held undigested notions of liberty.² They would not do anything which had ever been done in England in connection with which any abuses had ever been perpetrated. Hence it took six years, and the personal authority of Robert Morris, to introduce contracts.³ If it had not been for the personal weight and reputation in finance of Robert Morris, it is doubtful if heads of departments could have been put in the place of the boards. All

¹ Adams, ii. 448.

² *Ibid.*, iii. 83.

³ Morris's Morris, i. 382.

the mistakes were stubbornly defended, until bitter experience broke them down.

The methods of Congress were extremely unbusinesslike, wasteful, and inefficient. Time was wasted in appropriating sums of a few dollars each for petty expenditures. Money was wasted because there was no proper system of accounting. The paper-money system did not admit of it. So much paper was printed, and it was given to some persons to be expended for goods to be exported, to others for supplies, etc., etc.; "he to be accountable," as the phrase ran. Until he accounted, which it seems that in very many cases he never did, there was no responsibility possible in the books.¹ Supplies were squandered. The quartermaster's department and commissariat were conducted on a most extravagant scale.² Unwise projects were undertaken. At first it

¹ In 1783 Robert Morris reported: "Congress have before them full evidence that many persons, late officers in the civil department, refuse to account at all." (Dip. Corr. Rev., xii. 430.) A few months later he wrote: An investigation of some of the accounts of the old commercial and secret committee "has not only discovered some balances due to the United States, but has reported other matters which show in a strange point of light the necessity of examining and settling those accounts." (Ibid., 442.)

² "There is here a series of officers very expensive and totally superfluous. Every brigade has its commissary of subsistence, its quartermaster, its wagon-master, its commissary of forage; and each of these, again, has his deputies. Each general, again, is entitled to a special commissary of subsistence and three commissaries of forage. All these men rank as officers, and really have nothing to do. My blacksmith is a captain!" (Kalb, 140; at Valley Forge.)

was proposed to conquer Canada, Nova Scotia, and Florida, to build a navy, and to help Spain against Portugal. Small results were achieved.

Feb. 12, 1778, a committee of investigation reported from Valley Forge to Congress. The report was kept secret, but a copy of it was captured with H. Laurens's papers in 1780. It was first published by Stedman. It is there stated that the property of the continent is dispersed over the whole country: wagons are abandoned; intrenching tools left at random; tents and tent-cloths left in a farmer's barn, and lost sight of; no straw is provided in the huts; there is great sickness and mortality; inoculation cannot be carried on under these circumstances; there are constant new cases of small-pox, great lack of wagons. If the enemy should make an attack, they would capture the cannon for want of horses to move it. The troops are in danger of perishing with famine, or dispersing in search of food. The commissaries have bought pork in New Jersey which cannot be brought for want of wagons. The commissary and quartermaster department seem to be in a state of collapse.¹

At about the same time Kalb wrote: "The war-fund pays a good many bills that could not well be made public. I have no doubt that the contractors make fifty per cent on every contract, not to speak of the other defraudations, the mere enumeration of which would be endless."² The same officer, being a frugal German, thus comments on the general habits of waste in 1779: "The consumption of meat is

¹ Reed's Reed, i. 360.

² Kalb, 143.

almost incredible. It is impossible to habituate the people of this country to anything like order or regularity of living, and equally impossible for one who has grown up in the midst of order, discipline, and punctuality, to accustom himself to the indolence of these people."¹ In 1780 the French Minister, Luzerne, wrote: "It is difficult to form a just conception of the depredations which have been committed in the management of war supplies and foraging, clothing, hospitals, tents, quarters, and transportation. About nine thousand men, employed in this service, received enormous salaries and devoured the subsistence of the army, while it was tormented with hunger and the extremes of want."²

Tradition has fastened upon the sufferings at Valley Forge; but the sufferings of the next two or three winters were not less, and the distress and nakedness of the Southern army up to the end of the war were shocking in every point of view.³ In 1780 the French were obliged to help the American army with provisions. The point of this for our present purpose, however, lies in the fact that there was plenty all about, and the people were not paying any war-taxes at all. There was no general distress or poverty. Except at the seat of war for the time being, the war did not press on the people in any way. The whole trouble lay in the lack of organization by which to

¹ Kalb, 165.

² Durand, 218.

³ Kalb, 149, 183; Johnson's Greene, ii.; Reed's Reed, ii. 201; Bancroft, x. 415.

⁴ Durand, 217.

bring the resources which existed in ample abundance into application to the necessities.¹

The impression which all this makes is that of inexperience. It was the work of men who had not learned by experience that method and accuracy pay, and that slipshod arrangements waste money, time, and strength. The impression we get is that any strictness of system was irksome to people in those days, and irritated them. It was not until January, 1779, that Congress ordered the foreign agents to obtain information and report on the methods employed in the government offices in Europe.² The negligence and waste repelled support. It made the States less willing to give, or gave them a welcome excuse for not giving, and annoyed the French allies.

In 1779 Congress was split up by factions. There were two leading ones, which corresponded with the parties for and against Washington in the cabal. The party for Washington was considered by the French their party; the other they thought English. The latter was led by the two Adamses and the two Lees. The other Virginians were reckoned in the Washington party. The division was therefore also sectional. New England was not pleased that a Virginian was put at the head of the army. John Adams was not attached to England, as the French thought. He did not want the United States to fall into dependence on France, and he told the truth when he told King George that he was attached to no

¹ See the Life of Robert Morris on this point.

² Sec. Journ., ii. 130.

country but his own.¹ A more correct and important distinction between the parties was that one was continental, the other state-rights. In 1778 the French Minister, Gerard, reported to Vergennes about these parties, that the Southerners wanted rotation, the Northerners wanted Congress to act on the election for Congress. Most members owe their seats to zeal for the cause, not to their ability for business, and they do not put a man in a position for which he has special ability. This is worst of all for the finances. Congress has made itself the universal merchant and supply-agent, with mischievous consequences. The birth of the Republic is not rendered glorious by disinterestedness. All the agents have won exorbitant advantages. The spirit of gain is widely active. Cupidity is one of the distinctive characteristics of the Americans, especially of the North. "A lack of order and organization in details has existed since the beginning of the Revolution, and has more than once put the welfare of the Republic in jeopardy. If the English had shown themselves in America as bold and energetic as we have seen them elsewhere, they would have met with little resistance. The more one observes this contrast close at hand, the more one is forced to say that the finger of God can be seen in this fact." In this despatch, referring no doubt to Morris, he says: "A merchant presided over the Committee of Commerce. They transferred him to the head of that of Foreign Affairs, and he has quitted this last position because he has been suspected of using

¹ Adams, viii. 258.

the secret information which he received for mercantile profit."¹

In 1776 John Adams wrote to his wife: "There is too much corruption even in this infant age of our republic. Virtue is not in fashion. Vice is not infamous. . . . The spirit of venality you mention is the most dreadful and alarming enemy America has to oppose. It is as rapacious and insatiable as the grave. . . . This predominant avarice will ruin America, if she is ever ruined. . . . I am ashamed of the age I live in."² Jay wrote to Washington in April, 1779: "There is as much intrigue in this State House as in the Vatican, but as little secrecy as in a boarding-school."³

If we turn our attention to the diplomacy of the period, we note similar weakness, and loss from similar causes. There were half-a-dozen agents at Paris, who were certainly not suffering anything for the cause. They were living on 2,500 pounds sterling per annum each, in order to maintain the dignity of their country. Only one of them was useful. Franklin was the man on whom the cause hung from 1779 to 1782. He had the confidence of the French Government, and could get subsidies and loans. Jay and Adams were useful men in the later years. The looseness of the business methods was such that millions were spent, and no one had any vouchers or records to show for what, and no records of goods received in America or otherwise accounted for by

¹ Doniol, iii. 317.

² Letters to his Wife, i. 166, 171.

³ Johnston's Jay, i. 210.

which to control the record of the expenditures. Goods which were bought and paid for with money which had been begged were lying in warehouses in France or at Martinique, when the American army was suffering for the want of them. This proved a lack of energy in administration.

Franklin was old and indolent. He always protested that he was not a business man, and he was not capable of keeping accounts. The agents were also quarrelling with each other in a way which was a scandal to all the civilized world, for they did not keep it a secret. As the diaries, letters, etc., have come before the public during the last century, they have revealed a scene of jealousy, backbiting, and undermining, on the part of those men, which is shameful. Details of all this may here be passed over. The point for us is that here also lack of discipline and energy and high-bred self-control was inflicting deep wounds on the American cause and on American reputation.

Deane was by no means a wise man and not free from blame, but in the main he was a victim of the slack methods of business of which everybody was guilty; and the entire scandal connected with him, which was interwoven with many of the most important political movements of the period, may be charged to those methods.

CHAPTER VII.

FEATURES OF AMERICAN PUBLIC LIFE, 1765-1780. VI.

Lack of discipline in the Army. — Social disintegration. — Sectional dislike. — Youthfulness a national trait.

IF such were the general characteristics of the people, the place where they would manifest themselves most distinctly must be the army. John Adams, on his way to the conference with Howe, in 1776, was shocked at the number of stragglers from the continental army, and at the lack of discipline in it. He came back earnest for a reform.¹ As President of the Board of War, he set about it. He describes the army as "a scene of undiscipline, insubordination, and confusion."² He secured the adoption of the English articles of war without change, but the consequence of that seems to have been that they were not enforced. Washington's general orders show that he was constantly approving of the decisions of court-martials on cases of discipline, against his will, being dissatisfied with them as inadequate to discipline.

There was constant difficulty during the war with the naval commanders.³ The discipline on the ships

¹ Letters to his Wife, i. 213, 255.

² Adams, iii. 86.

³ Adams, iii. 200.

seems also to have been very poor. The captain of the frigate on which Adams went to Europe let his officers and men go ashore, and was obliged to go after them before he could get them aboard ship again.¹ The story of Paul Jones is one long series of woes on this head. An American frigate seems to have been a scene of mutiny and quarrelling. The story of Gillon and the South Carolina frigate, although it was never officially investigated, is one of criminal undiscipline, when we consider what suffering was inflicted on the army by the neglect to discharge duty according to strict principles. Adams came home on a French frigate, and speaks with admiration and surprise of the good feeling and the smoothness with which things went on.²

Kalb says that an officer would leave his post at the beginning of a battle, with or without an explanation to his superior, and when he pleased would return, draw pay and rations, and no questions were asked.³ Graydon mentions a Pennsylvania colonel who went home on leave and never came back.⁴ It is almost impossible to form an idea how many effective troops were at any time under arms, because the evidence is overwhelming that the paper returns bear only a remote relation to that fact. Washington wrote to Reed, January, 1776, that the total number of his army, on paper, was 10,500, but that a large number of these were returned "not joined," whom he never expected to see. It does not appear that there was

¹ Adams, iii. 95.

² *Ibid.*, 224.

³ Kalb, 129.

⁴ *Memoir*, 181.

any method of discipline for this.¹ Lee and Gates are notorious instances of officers who attempted to carry on separate operations against the orders of Washington.

This undiscipline often went to the extent of civil crime. Reed wrote to Washington, in 1781, that he had sent a sum of money to camp, by an officer, to be paid in bounties to the soldiers. The latter complained that they had never received it. The officer admitted that he had spent it, but a court-martial failed, on account of the unwillingness of the officers to serve on it.² In September, 1776, Washington complained of plundering by his own troops, on pretence that the goods belonged to tories. He mentions a case of an officer who led in this business, taking even a pier-glass and woman's dress, and who, when ordered by his superior to desist, refused. It was only after Washington forced a reconsideration of the finding of a court-martial that this officer was cashiered.³ Having given orders, in 1777, that horses belonging to tories should be taken, he found that, under cover of it, general plundering went on, and he was obliged to rescind the order.⁴ The case of Amy Darden's horse, which was stolen by an officer, became famous. It occupied Congress far down into this century as a "claim."⁵

To the citizen there was little difference between plunder and impressment. Impressment was the last

¹ Reed's Reed, i. 143.

³ Washington, iv. 119.

⁵ Johnson's Greene, ii. 327.

² Reed's Reed, ii. 300.

⁴ Bland Papers, i. 71.

resource, when the lack of organization and efficient administration had produced their ultimate results. The effects of it were ruinous to the cause. It was, of course, anarchy in administration, and made the people hostile to the cause. It was exercised first against tories, and fell in with the general abuse of that class; but then also against whigs, or anybody who had what was wanted. In 1777 Congress passed some very angry resolutions against woollen manufacturers who would not deliver goods until they got their pay, "thereby adding extortion to the crime of injuring the public credit." They ordered the clothier to seize the goods.¹ This was a good way to make cloth scarce afterward. In 1780 it is noted that the farmers of Pennsylvania would be willing to submit to England, being alienated by impressments.² In 1780 Reed writes that the number of wagons has amazingly diminished. In one county where there were formerly 1,620 there are now but 370. The reason is that wagons have been impressed without payment.³ Marshall inveighs against the impressment of horses in harvest-time. He mentions a horse-race, and says that those are the horses which should have been taken.⁴ In 1781 there was more difficulty to get wagons in Pennsylvania.⁵

The abuse of the tories drove many of them to become outlaws, and the special exactions levied on them were at least made an excuse by a number of

¹ Journ. Cong., iii. 466.

² Reed's Reed, ii. 284.

³ Reed's Reed, ii. 215.

⁴ Diary, 255.

⁵ Penn. Arch., ix. 420.

freebooters, who affected to rob tax-collectors or to execute reprisals. One of the most celebrated of these was Captain Fitz, in Chester County, Pennsylvania.¹ Others were Fanning and McGirth in North Carolina.² In 1779 there was a band of tory freebooters in Monmouth County, New Jersey.³ In 1781 the Governor of New Jersey offered a reward for Moody, who with a gang had twice robbed the mail. Moody offered a reward for the Governor, delivered to the provost in New York.⁴ These cases show the disintegration of society at the time. The methods of the outlaws were often a queer echo of the methods of the committees.

The foreign observers were most astonished, in the American army, by the neglect of pickets and scouts, and the general lack of means of intelligence. Lack of hard money was one great cause of this, because intelligence could be got only for money which would pass in both camps. It is evident, however, that a deeper cause lay in the same habits and disposition which we have noted. The battle of Long Island⁵ and the forts in the Highlands were lost for lack of proper pickets. Wayne did not admit that he was surprised at the Paoli massacre, and he did have pickets set; but in that case the incident must be attributed to the bad method of encamping, of which more in a moment. Kalb often expresses his wonder at the neglect under

¹ Futhey and Cope, 548; Penn. Arch., ix. 596.

² Caruthers, 139 *et seq.*

³ Moore's Diary, ii. 125.

⁴ Moore's Diary, ii. 466.

⁵ Long Island Hist. Soc. Mem., iii. 173 *et seq.*

this head. "They have no idea of a system of pickets and outposts."¹ When pursuing the English through New Jersey, in 1778, Hamilton wrote to Washington showing that they could do nothing for lack of adequate information.² Anburey says that the English did not have good information. Their neglect to use their opportunities would seem to prove it true. D'Estaing complained that the Americans never had good information. That which Washington gave him was always either old or incorrect. The French messengers travelled at night, which the American messengers would not do.⁴ De Choin told D'Estaing: "Marches are not made here army fashion, but like hordes of Tartars. They encamp almost without precaution, in such a way that they might be cut off or captured by parties such as the enemy would send out."⁵ Speaking of Washington's army in New York, in the summer of 1776, Graydon says that the numbers were exaggerated; "and the irregularity, want of discipline, bad arms, and defective equipment in all respects of this multitudinous assembly gave no favourable impression of its prowess."⁶

It is a remarkable fact that the foreigners at that time often expressed astonishment at the slowness of the colonists.⁷ Kalb blames Washington for slowness.⁸ He says of himself that he had to do all his

¹ Kalb, 139, 141, 218.

² Works, vii. 548.

³ Anburey, ii. 240.

⁴ Doniol, iii. 461.

⁵ Doniol, iii. 342.

⁶ Graydon, 147.

⁷ Anburey, ii. 70; Doniol, iii. 382.

⁸ Kalb, 125.

own writing because his aids were too lazy.¹ This trait seems to be connected with the general easy-going temper. It raises an interesting question as to when and how the Americans took on the character of highly strained nervous energy, which has marked them in later times. Traces of it are hardly to be found until after the second war. It has always been presented side by side with an ability to spend time in absolutely vacuous idleness which no other people shows in the same degree.

The war and the army acted as great educators on the people in the way of rubbing them together, correcting provincialism on all sides, and gradually moderating sectional dislike. This last, at the beginning of the contest, was intense, and as it was an obstacle to union it deserves attention. In 1760 Franklin argued that the colonies could never be united against England, because they all loved the mother-country much more than they loved each other.² Graydon's Memoir contains extreme expressions of contempt for New England men. "I have in vain endeavoured to account for the very few gentlemen and men of the world that at this time appeared in arms from this country [New England], which might be considered as the cradle of the Revolution. There were some, indeed, in the higher ranks, and here and there a young man of decent breeding in the capacity of an aide-de-camp or brigade-major, but anything above the condition of a clown in the regiments we came in contact with was truly a rarity. Was it that the cause

¹ Kalb, 173.

² Franklin, iv. 42.

was only popular among the yeomanry? Was it that men of fortune and condition there, as in other parts of the continent, though evidently most interested in a contest whose object was to rescue American property from the grasp of British avidity, were willing to devolve the fighting business on the poorer and humbler classes?"¹ This sectional feeling had very great political effect. Perhaps the effects of it can be traced down to the civil war. We have already noted that the first parties which arose in Congress were drawn partly on this line. The New England officers met with unfair treatment.² There was a fear of the "levelling" principles of New England.³

One subject of dispute was as to the value of militia. John Adams favoured a militia system with short enlistments.⁴ He got some support in New England, but the opinion in general was strongly contemptuous toward militia. Greene said that he had more of them than he wanted.⁵ Washington complained constantly of the system of short enlistments and militia reinforcements. The Frenchmen made fun of the militia.⁶ Lauzun says that they ran away at the first fire.⁷ Lafayette told the French commander, speaking from his knowledge of the American troops, that if an energetic attack was to be made, he should desire to see the French troops lead.⁸ On the other hand, the militia defeated and captured Burgoyne. It is

¹ Graydon, 157.

³ Adams, ii. 350.

⁵ Reed's Reed, ii. 344.

⁷ Lauzun, 203.

² Adams, iii. 67.

⁴ Ibid., iii. 48.

⁶ Doniol, iii. 342.

⁸ Doniol, iii. 341.

true that they greatly outnumbered him, but the Englishman Anburey shows through his whole narrative great respect for the American troops ; Riedesel likewise. At the investigation of Burgoyne's campaign, in England, Lord Balcarres, who had been an officer in the expedition, was asked why the Americans did not defend their intrenchments. He replied, because "they always marched out of them and attacked us." "They fought at all times with courage and obstinacy." The attack on Stony Point, being an assault on a fortified place, raised the confidence and reputation of the troops.¹ This was the sort of work which they were thought incapable of. It remained an open question whether, if an adequate system could have been devised, suited to the character of the people and their habits of life, for organizing the militia, and bringing them into the field in overpowering numbers upon special occasion, they might not have proved very successful. As it was, the American army was a caricature of a European army in the style of Frederick the Great.

Unfortunately the medical department of the army presented the same deplorable features which we have been obliged to notice elsewhere. In 1776 the surgeons were bickering with each other.² A letter is printed from Dr. Shippen, in 1777, complaining of neglect and fraud in the medical department of the army, with allegations of corruption against the director of it, although he does not want to be called upon

¹ Kalb, 174.

² Washington, iv. 117.

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to make the allegations good.¹ In April, 1778, Washington transmitted to Congress a letter from Dr. Rush, making charges against Dr. Shippen.² When he took office, in 1781, Robert Morris told a committee of Congress that "the expenses of the medical department are said to have exceeded those of the like kind in any other country."³

The facts which have now been presented suffice to show that the great faults in the public affairs of the United States at this time were indolence, negligence, lack of administrative energy and capacity, dislike of any methodical business-like system, and carelessness as to money responsibility and credit. It was alleged against the Americans that they were selfish. In their relations with France they seemed so. They seemed to lack pride and self-respect where money could be got. It is, however, questionable whether this was correctly ascribed to selfishness. It was rather a lack of generosity and magnanimity; and upon close study it seems that these faults are not correctly described, in the case of the Americans, as due to selfishness. The ungenerosity was of the kind manifested by children. It arose from the same cause as the ungenerosity of children; namely, lack of sense of the great law of equivalence. A man with experience of the world finds that there are few things to be got for nothing. His mind inevitably reverts to the cost or equivalent. He reduces his expectations to the measure of the equivalents he can give. Children, on the

¹ Lee's Lee, ii. 171.

² Journ. Cong., iv. 133.

³ Dip. Corr. Rev., xi. 356.

contrary, expect all things, or are ready to conceive of the possibility that things may come for nothing. This seems to have been the American trait, and it fell in with all the youthful circumstances of their case. It provokes a smile to see with what sublime confidence they planned this, or asked for that, without proposing any equivalent. Laurens argued to Vergennes that it was for the interest of France to help the Americans through the war, at a time when, as he and Vergennes both very well knew, the Americans were subjecting themselves to no extraordinary self-denial to carry themselves through it.¹ The Frenchman remonstrated against the demands, but made no impolite reference to the comparison which was possible; but, in effect, Laurens's argument put France in the position of a dupe. The agent, or go-between, of the Spanish Minister at last replied to Jay: "But you offer no *consideration*." ²

With these facts of the situation before us we see that the first statesman of the period would be the man who most clearly perceived the faults and needs of the country in civil administration, union, army, and finance. We can also easily anticipate that the attempt to introduce needed reforms, and to raise the tone of civil and political affairs, would bring the author into sharp collision with all popular prejudices, habits, tastes, and notions. Also that, if the attempt to introduce energy into the administration, discipline into the army, cohesion into the union, punctuality into the finances, was pushed faster and farther than the

¹ Dip. Corr. Rev., ix. 236.

² Ibid., vii. 354.

temper of the people for the time being would permit, the reforms would suffer shipwreck from the revolt of the masses against the operation to which they were subjected. In these observations we have the clew to the career of Alexander Hamilton.

CHAPTER VIII.

HAMILTON'S MILITARY SERVICE ; EARLIEST FINANCIAL SCHEMES ; SERVICE IN CONGRESS ; ASSISTANCE IN THE ADMINISTRATION AND REFORM OF THE FINANCES.

WE left him an officer of artillery at the beginning of 1776. Near the end of that year he was appointed on Washington's staff, and became his confidential secretary. The General had been for six months in great need of an officer of that kind.¹ He found one who was just what he needed. Hamilton was industrious. He wrote a clear style, although prolix. He was capable of taking the General's orders, and composing a letter to publish them, which would rank as of very high literary merit among the writings of those days. He was also a studious man, and was studying topics of finance and administration.² The number of important and confidential missions on which he was employed is proof of his competency in a variety of directions.

Of these, one of the most important, and one which brought distinctly before him the evils of poor discipline, was the errand on which he was sent to Albany, in November, 1777, to obtain reinforcements from the

¹ Reed's Reed, i. 127.

² Republic, i. 122.

Northern army in the hope of driving the British out of Philadelphia. This boy of twenty had to execute a diplomatic mission of great delicacy with the man who at the moment was the great hero, having all the credit for capturing Burgoyne. He only partially succeeded, but the letters which he wrote are very extraordinary productions from a man of that age. He also on the same errand had a similar difficulty to get troops from Putnam, who was also a great man by age and reputation.

On account of his ability to speak and write French, he was very useful in the conferences with the French generals after the French army arrived. His most intimate friend at this period was John Laurens, who was perhaps the most interesting hero of the war. In 1778 Hamilton was Laurens's second in a duel with Gen. Charles Lee; Laurens being the challenger on account of words defamatory of Washington which Lee was reported to have used. Lee was very slightly wounded. In 1780 Hamilton was in attendance on Washington when Arnold's treason was discovered. He has left the best account of that affair which we possess. He was much interested in André, and desired that his request to be shot, not hanged, might be granted.²

Although Hamilton was probably aware of his usefulness on the staff, for he never lacked self-appreciation, he was eager for military renown. His friend Laurens had the same passion. Very probably they strengthened each other in it. Hamilton's first appli-

¹ Works, vii. 562.

² Works, viii. 18.

cation to Washington, in 1780, for an appointment in the line was refused, because there was no post to which he could be assigned without calling out some of the jealousies of which there had been so many.

In February, 1781, he quarrelled with Washington in a way which manifested bumptiousness on his part. The letter which he wrote to his father-in-law, Schuyler, about the affair is also disagreeable reading. He repelled some advances made by Washington to a reconciliation, not with churlishness, it is true, but with a rather affected dignity. However they parted friends, and the incident produced no estrangement. It does not appear, however, that there ever was a warm personal attachment between them, as there was between Washington and Laurens, or Washington and Lafayette. In his letter to Schuyler, Hamilton says that Washington is not delicate or good-tempered. He had long been determined, when the breach came, not to stay; and he says, with some sense, that Washington's self-love would never forgive him, if he (Washington) should make concessions. "For three years past I have felt no friendship for him, and have professed none. The truth is our dispositions are the opposite of each other, and the pride of my temper would not permit me to profess what I did not feel. Indeed, when advances of this kind have been made to me on his part, they were received in a manner which showed at least that I had no desire to court them, and that I desired to stand rather on a footing of military confidence than of private attachment. You are too good a judge of

human nature not to be sensible how this conduct in me must have operated on a man to whom all the world is offering incense. With this key you will readily unlock the present mystery."

In that summer he found the opportunity for active service which he had desired, and joined the expedition to Virginia, which ended in the surrender of Cornwallis. At the final assault on the works, he distinguished himself among the first.¹ He had been married on the 14th of December, 1780, to Elizabeth Schuyler; and the two letters which he wrote to his wife, to inform her that he was going to Yorktown, show a gentle side of his character which appears but little in those letters of his which have been preserved.

The first attempt made by Hamilton to act on public affairs was a letter which he wrote on a plan for a bank.² Mr. Lodge dates this letter 1780, and says that it was written to Robert Morris, who had just undertaken the management of the finances. Morris was not elected Superintendent of Finance until 1781. The letter is addressed to a member of Congress, who is not mentioned by name. Morris was not in Congress after 1778. J. C. Hamilton says that the letter was written "soon after the army entered winter quarters at Morristown."³ The financial circumstances mentioned in the letter carry it to the month of November, 1779.

¹ Lee's Southern War, ii. 341. He had also won military distinction in the Brandywine campaign. (Ibid., i. 19.)

² Works, iii. 61.

³ Republic, i. 570.

The importance attaching to the question of the date is that, if it goes back to 1779, it was earlier than the first beginning of the bank at Philadelphia. We must infer either that the letter was written to some other member of Congress than Morris, or that Hamilton supposed Morris to be in Congress when he was not. The letter was sent without signature, but he gave an address, by which a reply might reach him. In his letter to Morris of April, 1781, he does not refer back to this letter. It is not therefore probable that a reply was made to it by Morris, if it was sent to him, as the whole tenor of it would certainly lead one to suppose.

He says that the document of 1779 is "the product of some reading on the subject of commerce and finance." It is not easy to see what he could have read.

There is a tradition that he read Adam Smith, and made a careful commentary upon "The Wealth of Nations," in 1783, which is now lost.¹ Nothing in his writings goes to prove that he ever read Adam Smith. By this it is not intended to say that a man who had read Smith with care must accept his conclusions. Many men have read him without agreeing with him at all; but it is not often that an intelligent man, eager to learn all he can, has, after reading Smith, been able to repeat the notions of the mercantilists, as Hamilton did, without at least feeling bound to take some note of the objections which Smith brought against them. Neither does Hamilton show

¹ Republic, ii. 514.

that he had read Hume's economic writings with care and profit, although Hume was the chief authority then in the hands of people who busied themselves with economic topics.¹ Much less does he seem to have read any of the French economists who were just at the time attracting attention. Dupont's "*Table Economique*" was published in 1779, and was in the hands of Franklin at once,² but of course could not have been used by Hamilton; but even later he does not appear to have read the contemporaneous French writers.³ The only mention of any writers of that school in his works is in his review of Jefferson's first message, in which he refers contemptuously to Turgot and Condorcet.⁴ The writers whose influence seems to be traceable in his opinions are Montesquieu, Melon, and Law, especially the two latter.⁵ He refers to Law in this letter of 1779, and in the one to Duane, six months later.

¹ He quotes Hume, in "*The Farmer Refuted*" (1775), on points of political philosophy (Works, i. 70, 78); also in the "*Federalist*" (Works, ix. 551). In the "*Continentalist*" (1781) he tries to interpret Hume's doctrine of the balance of trade (Works, i. 256), on which see page 180. In the convention of 1787 he quotes Hume as to the utility of corruption in the English system (Works, iii. 390). In his paper on a national bank (1781), he quotes Hume as to the amount of the circulation in Great Britain (Works, iii. 86).

² Franklin, viii. 405.

³ In his letter to Morris, 1781, he once uses the word "numerary," which would seem to indicate French reading. (Works, iii. 103.)

⁴ Works, vii. 245.

⁵ He does not mention Melon.

In the present letter he credits Law with "more penetration than integrity;" and the reason for crediting him with penetration is that he "saw that no plan could succeed which did not unite the interest and credit of rich individuals with those of the state, and upon this he framed the idea of his project, which, so far, agreed in principle with the Bank of England."¹

This notion of holding up the government by giving rich men an interest in it is one which has often been charged upon Hamilton, but it plays no important part in any of his later discussions, and might rather be regarded as one of the notions in this document which he outgrew. For the scheme in the letter of 1779 is crude in the extreme. It is not a plan for a bank, but for a trading company, in which the government and a company of rich men were to be jointly interested. It reminds one of the attempts in the early part of the Revolutionary War, through the Committee on Commerce, to carry on trade as a means of raising money for Congress. He proposes a foreign loan of ten million dollars, the need of a foreign loan being at the time one of his firm convictions. Then he proposes to take subscriptions for two hundred millions of continental paper at twenty for one, which would be ten millions more. The government puts in the former and the private subscribers the latter. The notes were to bear interest at two per cent, payable in three months. He admits that he is not clear as

¹ Locke is barely mentioned in *Works*, i. 59.

to whether the principal of the notes should be payable at the three months' limit or not. The scheme presents no workable device. It is related to those which every other man had in his pocket in 1875. Unfortunately, it is mutilated at the part where he undertakes to set forth how it would work. At last its success must have depended on the success of the commercial enterprises, and on the success of the government in getting in loans and taxes. In this letter he urges that there should be a head of the treasury, and says that the person he is addressing is the one for the place.

In August, 1780, a convention was held at Boston, one of the series of price conventions, which recommended a closer union. Hamilton caught up the proposition, and wrote to the president of the convention, in Washington's name, approving and expressing a hope that something would come of the proposition. In October he wrote a letter which is dated at Boston,¹ in which he said: "We must have a government with more power." In February, 1781, he said that the complete ratification of the confederation would be a good thing, unless it made the people think that Congress had power enough, and so prevented it from getting more.² In the summer of that year he published the "*Continentalist*"³ papers, describing the

¹ Works, viii. 29.

² Ibid., 34.

³ The word "continental" and its derivatives sound strangely to modern ears. They were devised to get a word for "the whole" which should have no political color, like Union, Confederation, etc. Therefore continental stands in the sense

forlorn state of things, blaming State particularism for it, and urging a revision of the confederation so as to make a more perfect union. He was led on to discuss the whole political and economic situation.

His next contribution to public questions was a letter to Duane, Sept. 3, 1780.¹ This letter is the document which shows that he had seized the main faults and difficulties in the state of the country, in 1780, and traced them to their true causes. He urged that the Union was defective, although the Articles of Confederation were not yet adopted. The States have too much power, especially over the army. There is a want of energy in the administration. He wants a single head to each department, and wants a convention called to meet on the first of the next November to settle a "confederation."² He would not wait for the States to be called on for amendments. [When we note the impracticability of that means of amendment, as it was afterward developed by experiment, we must regard this as a very clear-sighted judgment.] He wanted the new Constitution to give Congress complete control of the army, navy, commerce, diplomacy, etc. He enumerates in detail all the important func-

which we now give to national. A man who held continental views was the precursor of a federalist, and the "continentalist" meant what ten years later was called a federalist,—that is, before that word received its strict party application; when it meant one who wanted a confederation of the States.

¹ Works, i. 203.

² They used this word currently in the sense of constitution for a confederation.

tions of a modern state. These are all to be in the federal state. Then he takes up ways and means. He proposes four, — a foreign loan, which, he says, ought to have been obtained long ago, taxes in kind, a bank founded on public and private credit, and taxes in money. He sketches his plan of a bank briefly.

April 30, 1781, he wrote a letter to Morris containing a scheme of a real bank.¹ It is a very elaborate paper. He starts out with one of the old notions that the revenue of a country is in some relation to its circulation, confounding money and wealth. By comparing the cases of England, France, and America, he reaches the conclusion that the United States are capable of paying, on this method of calculation, a round six millions annually, for all purposes, State and federal; but the needs of State and federal expenditures are ten millions. This would leave four millions to be borrowed abroad. So much cannot be expected from France. He urges a bank to supply the deficiency. "We have not a sufficient medium." Here again, then, he has gone back from the revenue, which is wealth, to the medium of exchange, which is money. His bank is to have three million pounds, lawful money (six shillings to the dollar), capital. His reason for putting it in "pounds" is that the dollar money is tainted with a prejudice because the continental was in dollars. The capital was to be paid in land securities, specie, plate, bills of exchange, or European securities. About one third

¹ Works, iii. 86.

was to be in specie. The United States and the States might subscribe for not over half of the capital. Notes were to be issued in pounds, shillings, and pence, payable at sight; those under twenty pounds bearing no interest, those larger four per cent. The bank was to buy land from which he thought that great gains might be made, as tories would put much land on the market and sell it cheaply. Depositors were to pay a fee for safe keeping. The bank was to lend Congress twelve hundred thousand pounds at eight per cent, for the interest of which taxes were to be laid and the income strictly appropriated. Other revenues were also to be raised sufficient to pay the bank two per cent on all the paper outstanding, at forty for one, for which provision the bank was to guarantee the paper and retire it in thirty years. There were to be three auxiliary banks in Massachusetts, Pennsylvania, and Virginia. Finally, he wanted Congress to obtain amendments to the Articles of Confederation, giving it power to levy import duties, a land tax, and a poll tax, and to collect the same by its own agents.

His bank was a paper-money machine, and the scheme of it contained financial fallacies which, as we shall see, he never conquered; but the boldness of the scheme, and the skill with which it was aimed at the difficulties of the situation, are most remarkable. It is the statesmanship of it which is grand, not the finance. He had seized the chief faults in the existing institutions of government. He says that what he wants is "system and vigour."

Morris replied that he was afraid to "interweave a security with the capital of this [his] bank," lest the notes should seem to be circulated on that credit, and the bank would fall, if there should be a run on it. "I not only think, but on all proper occasions shall say, that the public are indebted to you" for this plan.¹

In 1782 Hamilton wrote to Laurens that to make independence a blessing "we must secure our Union on solid foundations, — a herculean task, and to effect which mountains of prejudice must be levelled."²

In May, 1782, Robert Morris asked Hamilton to take the position of receiver of continental taxes in the State of New York. Hamilton at first declined, but afterward consented. Morris had great difficulty to find any person for these offices who could be relied upon to put any energy and spirit into his work. It must have been a great encouragement to him to have somebody take hold of it as Hamilton did. He visited the Legislature in order to try to persuade them to conform to Morris's plans, and also made strenuous efforts to obtain information and report upon the tax system of New York, and the state of the relations between that State and the federal government. He held this position until he took his seat in Congress in November.³

He sat in Congress in the year 1782-83, and there advocated the same ideas; although, as he wrote to Jay in July, 1783, "The road to popularity in each

¹ Dip. Corr. Rev., xi. 366.

² Works, viii. 72.

³ Ibid., 52-89.

State is to inspire jealousies of Congress, though nothing can be more apparent than that they have no power.¹ As early as 1776 the question had arisen in his mind whether Congress ought not to collect its own taxes by its own agents.² This is one of the cardinal features of an adequate federal system, and he urged it strenuously in Congress.³ On the 30th of June, 1783, he offered resolutions setting forth in considerable detail, under twelve points, the defects of the confederation, and proposed a resolution for a convention to meet and revise the Articles.⁴

In many respects this was the most important session of the Continental Congress. The finances reached a climax; peace was concluded, and the army disbanded. But these affairs did not run their course without producing a very serious crisis. As the time approached for disbanding the army, their complaints became louder and louder. There was a clear disposition to get rid of them as quickly as possible without paying them. Many wanted to "elude the just pretensions of the army."⁵ What was an army one day would have been turned into the same number of tramps the next day, with no means of obtaining a dinner. There was a project, which was construed by many into a conspiracy, on the part of the two Morris and Hamilton, to unite the interests of the army, as creditors, with those of the other creditors, in order to bring pressure

¹ Works, viii. 147.

² Republic, i. 122.

³ Madison Papers, i. 288, 291, 380.

⁴ Works, i. 288.

⁵ Ibid., viii. 109.

upon Congress to adopt a plan of revenue. Washington warned Hamilton that this was suspected, and that it would defeat their own object, if the army should think its rights delayed in order to make capital for a project of congressional policy.¹ Hamilton, in his reply, did not admit the objectionable colour which was given to their enterprise. He said that there were in Congress two classes of men, — one attached to State, the other to continental politics. “The advocates for continental funds have blended the interests of the army with other creditors, from a conviction that no funds for partial purposes will go through those States to whose citizens the United States are largely indebted.”²

In the mean time Morris had become very tired of his position. In January, 1783, he wrote to Franklin: “Imagine the situation of a man who is to direct the finances of a country almost without revenue (for such you will perceive this to be), surrounded by creditors whose distresses, while they increase their clamour, render it more difficult to appease them; an army ready to disband or mutiny, a government whose

¹ Washington’s Writings, viii. 418.

² Letters to Washington, iv. 17. It must be noticed that the words “fund” and “funding” at this time were going through a change of meaning. The old meaning, which is here employed, was that of a single branch of the revenue. Thus the income from a land tax would be a fund, and to fund was to enact a certain tax and appropriate the income from it to the payment of a specific obligation of the government. The word “fund” is of frequent use, however, in the same period, for resources or means on hand available for certain purposes.

sole authority consists in the power of framing recommendations. Surely it is not necessary to add any colouring to such a piece ; and yet truth would justify more than fancy could paint.”¹ Two days later he wrote to Franklin again : “ If one bill should be protested, I could no longer serve the United States.”² In fact, he had already overdrawn on the banker Grand at Paris, but it had not as yet involved a protest. The fact was that he had been treated with the same spirit which has already been described as pervading the treatment of public affairs. It was the custom to select a man for some arduous position, and then, instead of giving him support and furnishing the necessary means, to take an attitude of criticism toward him. Morris resigned on the 24th of January, 1783. “ To increase our debts while the prospect of paying them diminishes does not consist with my ideas of integrity. I must therefore quit a situation which becomes utterly insupportable.”³ When he informed Washington of this, in February, he said that the Congress wished to do justice, but “ they will not adopt the necessary measures, because they are afraid of offending their States.” January 30 a committee reported on the finances, stating that, of the eight millions of dollars demanded for the service of 1782, only \$420,000 had been received. The loans obtained in Europe had produced for that year only \$833,000, so that Congress had had only a little over a million and a half of dollars

¹ *Dip. Corr. Rev.*, xii. 310.

² *Ibid.*, 313.

³ *Ibid.*, 326.

available for that year. The estimated expenditure was \$5,713,000, without counting interest on former debts, which would alone exceed all the money at their disposal.¹

As soon as Morris's resignation was known he was greatly blamed. He was said to have ruined the public credit, and to have reflected on Congress. This responsibility was evidently the fate of any executive officer under the system. He wrote to the President of Congress: "On the day on which I was publicly charged with ruining your credit, those despatches arrived from Europe which tell you it was already at an end." "It can no longer be a doubt to Congress that our public credit is gone."² At the same time he wrote to Greene: "You and every good man will, I hope, acquit me for leaving a post in which I am totally unsupported, and where I must be daily a witness to scenes of poignant anguish and deep injustice, without the possibility of administering either relief or palliation."³ Hamilton sympathized completely with Morris, both of them being anxious for the public credit and for the Union. Hamilton wrote to Washington that Morris had resigned because he found himself in a position where he must either resign or sacrifice his own credit and character, together with that of the public. He blames Morris, however, for the publication of his resignation.⁴

¹ Journ. Cong., viii. 84.

² Dip. Corr. Rev., xii. 342.

³ Ibid., 339.

⁴ Letters to Washington, iv. 20.

In April it became necessary to make some arrangement with the army. The sum necessary to give them three months' pay was \$750,000. A committee of Congress was appointed to confer with Morris as to what could be done. He said that the only way was "to risk a large paper anticipation." This, in the language of the times, meant, issue certificates of indebtedness and run the risk of their being paid by some future taxes. If this step was taken, he would have to become personally liable, on leaving the office, for about half a million, depending on his successor to save him from ruin, and risk his personal credit.¹ In the conference with the committee he agreed to remain in office until this enterprise was carried through, provided that he could rely upon Congress for such support as would make it sure of success. Whereupon Congress resolved that they would give him this support. Hamilton was chairman of the committee and the leader in this arrangement.² Thereupon new notes were printed and distributed to the army. In May Morris wrote to Franklin: "If these notes are not satisfied when they become due, the little credit which remains to this country must fall, and the little authority dependent on it must fall too." He urged him to obtain another loan from France.³ Congress failed of its pledge in this matter, or perhaps it should rather be said, the event proved that they had given a pledge beyond their power.

¹ Dip. Corr. Rev., xii. 346.

² Journ. Cong., viii. 184.

³ Dip. Corr. Rev., xii. 372.

Morris was forced to draw upon the bankers in Holland to sustain the notes which he had issued, and his bills went to protest at the end of the year.¹

Even this arrangement did not run its course in such a way as to avoid trouble with the army. Some soldiers at Lancaster, Pennsylvania, who had never been in the field, marched to Philadelphia on the 15th of June and besieged Congress in their hall. They also directed demands to the authorities of the State. The mutiny lasted about ten days, and it was necessary to send for troops from Washington's army to suppress it. This incident led to a somewhat acrimonious correspondence between the authorities of the State and a committee of the Congress, of which Hamilton was the leader. The Council of Pennsylvania would not call out the militia until some outrage had been committed. This was the old method of dealing with riots, and was in the highest degree vexatious to Hamilton. Congress, apparently under his leadership, manifested indignation that the State had not given them adequate protection; although Hamilton did not accept the responsibility for the removal of Congress to Princeton, which immediately took place, as an expression of this indignation.²

Of course the thing upon which everything turned was taxation. Hamilton gave the most earnest effort to the projects before Congress for securing federal

¹ See further on this the *Life of Robert Morris*.

² *Journ. Cong.*, viii. 206, 207, 260; *Dip. Corr. U. S.*, i. 9; *Works*, viii. 145.

taxes. A project had been pending for some time to get the consent of the States to a five per cent import duty, to be levied for the use of the Confederation. Oct. 10, 1782, Rhode Island and Georgia were called on for a definitive answer whether they would agree to the five per cent duty, upon which they had not yet acted. On the 6th of December the Superintendent of Finance was ordered to represent to the States the necessity of their paying twelve hundred thousand dollars to meet the interest on the debt, also two millions for current expenses; and it was voted that a deputation be sent to Rhode Island to ask that State to consent to the five per cent duty. On the 12th a letter from the Speaker of the lower House of Assembly of Rhode Island was read, stating their reasons for refusing: first, that the tax would bear hardest on the most commercial States; second, that it would introduce officers into the States unknown and unaccountable to the State; third, that it would give Congress power to collect money from the commerce of the State indefinitely as to time and quantity, and for the expenditure of which Congress would not be accountable to the State.¹

Here we have a complete echo of the objections that were made to the English taxes before the war. The anarchical elements which had existed in the pre-Revolutionary agitation began to make themselves felt against the Union as soon as the dangers of the war were past. They also intertwined immediately with the questions of taxation and finance. The disposi-

¹ Journ. Cong., viii. 25.

tion presents itself at once to shirk out of all possible obligations to the army and the public creditors, and to break down the Confederation, because that was the organ through which the claims of these classes could be presented. The authority of the Confederation was also denounced as taking the place, in the way of tyranny, of what the English government had been before the war.

In the answer to this memorial, which was drafted by Hamilton,¹ he took issue in the most positive manner possible with all the doctrines of the document. He claims for Congress "an absolute discretion in determining the quantum of revenue requisite for the national expenditure. When this is done, nothing remains for the States separately but the mode of raising. No State can dispute the obligation to pay the sum demanded without a breach of the confederation; and when the money comes into the treasury the appropriation is the exclusive province of the federal government." By taking issue so directly and openly, however, he enlightened a great many persons as to what the issue was who were repelled from his side as soon as they understood it. For instance, Jones of Virginia² says: "Many now say the reasoning of the Pamphlet of Congress determined them against the measure [the impost], disapproving the sentiment conveyed in the letter to Rhode Island." We shall see hereafter many other illustrations of this same fault in Hamilton's methods.

Immediately after this report was made, the mem-

¹ Journ. Cong., viii. 153.

² Letters, 118.

bers from Rhode Island found themselves subject to discipline in Congress on account of a letter from one of them which was published, containing a statement that Congress had plenty of money at its disposal obtained by loans in Europe, and that the tax was not needed.¹ In February Hamilton said in a speech that it was useless to answer the arguments of Rhode Island, because those given were not the real ones which influenced her; that the real motive was a desire to tax Connecticut.

In the stress of the negotiations with the army in April, the project of revenue was adopted by nine States, Rhode Island alone voting no, and New York divided, because Hamilton voted no.² On the 26th of April, 1783, an address to the people of the States was issued, drafted by a committee of which Hamilton was one. They estimate the debts at forty-two million dollars, of which the foreign debt was seven million eight hundred thousand, and the interest on the whole \$2,415,956. They expect that the imposts will bring in not quite a million. In the revenue scheme which had just been adopted, there was added to the five per cent import duty certain specific duties. The other million and a half for the interest, the States were to raise in such way as they deemed best.³

Hamilton and Morris were extremely discontented with this plan, and the latter considered it as falling short of the promise which Congress had made to him. Out of two millions and a half necessary for

¹ Staples, 412 *et seq.*

² Journ. Cong., viii. 139.

³ Ibid., 145.

interest, barely one million was provided for, and a million and a half still depended upon the voluntary action of the States. Hamilton wrote to Clinton that he voted against this plan because it had little better chance of being accepted by the States than a better one, and if adopted, it would fail of execution.¹ In September Massachusetts refused to grant the impost, although she admitted the necessity of sustaining the public credit, and stated her reasons, which amounted really to a remonstrance with Congress, because the latter had agreed to the half pay and to large salaries. This was a new development, and seemed to promise that the States would take the opportunity of granting taxes to review the action of Congress.

Hamilton also proposed at this session a complete plan for a military establishment in time of peace, including a navy, fortifications, and a military academy.² His idea was that war was a contingency always to be borne in mind, and that the United States should not, when the next war occurred, have its military affairs in such a condition as that they had been in during the last war.

He refused a re-election to Congress, and went back to New York to practise law.

¹ Works, viii. 117.

² Ibid., vi. 71.

CHAPTER IX.

THE TREATY OF PEACE; TORIES; THE CONSTITUTIONAL CONVENTION OF 1787; THE STRUGGLE FOR THE RATIFICATION OF THE CONSTITUTION; HAMILTON CHARGED WITH MONARCHISM.

It was, however, impossible for him to abstain from public activity. In 1784 he published letters with the signature "Phocion," in regard to the treaty of peace, and against the attainder and persecution of tories. For ten years England and the United States charged each other with breaches of the treaty. The treaty was undoubtedly, as Hamilton declared, favourable to the United States beyond what anybody could have hoped.¹ The United States was extremely well served in that negotiation. The French were astonished at the English concessions, especially in regard to the western boundary, the fisheries, and the Mississippi.² Franklin, however, was justified in the

¹ England "has ceded to us a large tract of country to which we had even no plausible claim." (Works, *ii.* 457.)

² Vergennes to Gerard, Dec. 4, 1782, says that the concessions of the English as to boundaries, fishery, and loyalists exceed what he would have believed possible. "What is the motive which can have brought about a yielding disposition, which might be interpreted as a species of surrender?" (Circourt, *iii.* 50.)

remark which he made, that every treaty of peace causes clamour and discontent. The Americans were unwilling to execute the stipulations by which they conceded that there should be no hindrance to the collection of the British debts, and that the tories should meet with a degree of toleration.¹

In 1787 Hamilton was a member of the New York Legislature, where he endeavoured to obtain the repeal of all laws against the treaty with England. This was in accordance with a recommendation of Congress, that a law general in its terms should be passed which would make the treaty a part of the law of each State. He also tried to have the federal revenue system adopted by the State. His argument upon this point² was a patient exposition of the facts which made this action important. New York, however, was willing

¹ Article fifth provided that Congress should earnestly recommend to the legislatures of the several States to provide for the restitution of confiscated estates to real British subjects, and of all property to other persons within the English lines who had not borne arms against the United States; and that any other person should have liberty to go into the States and stay twelve months in his efforts to recover property; and that they should also recommend to the States a revision of all laws in a spirit of conciliation; and that property should be restored upon a payment to the new possessor of any price which he had actually paid.

Article sixth provided also that there should be no more confiscations or prosecutions for the part taken in the war, and that no person should suffer in person or property for the same; that persons in confinement on such charges at the time the peace was made should be set free, and that prosecutions should be discontinued. (*Dip. Corr. Rev.*, x 113.)

² *Works*, ii. 16.

to pay the money, but not to grant the power to the United States. "Power may destroy our liberties."¹

In the matter of the tories, Hamilton came forward with chivalrous courage to their defence. In the case of *Rutgers vs. Waddington*, he tested the law of New York by which a whig who had left the city during the British occupation could collect rent of a person who had occupied his property during his absence, although it might be under a military order from the English. This was an extremely unpopular step, especially as he succeeded in setting aside the law in the Mayor's court. He afterward said, however, that neither he nor the other lawyers in New York ever pleaded the treaty, and that they could not get a ruling from the Supreme Court on that point.² *Rutgers vs. Waddington* was settled by a compromise.³

¹ Works, ii. 37.

² The most celebrated case under the confiscation system of this period was that of *Astor vs. Carver*. The estate of Roger Morris and his wife was confiscated. Mrs. Morris's estate was a part of the Phillipse property, in which she had only a life interest by a marriage settlement. It was in Putnam County, New York. John Jacob Astor bought the right of Mrs. Morris's heirs in 1819, and commenced suit of ejectment. The State being bound by warrant to defend the title, Astor offered to take \$300,000 for his claim. In 1829, he having won his suit, the State agreed to pay him \$450,000 for the claim, provided that the Supreme Court of the United States should sustain it on appeal, which they did. (Peters, iv. 1.) Sabine says that Mrs. Morris, Mrs. Robinson, and Mrs. Inglis were the only ladies attainted for treason. (Sabine, ii. 104.)

³ Works, iv. 335, 408. In the biography of Hamilton in the suppressed history of John Adams's administration it is said 'The American tory, against whom he had fought, he now

The time was now approaching when Hamilton was to see public opinion advance toward the position which he had long occupied in regard to the Union. The immediate connection in which it came about was the matter of regulating commerce. It was largely an effect of the geography of the coast. It was impossible for New York to enforce any regulation in which New Jersey did not agree, because they both abutted on New York Harbor; but if New Jersey made any regulations, in order to conform to New York upon the one side, it was found that the same regulation would produce difficulty with Pennsylvania on the other side, at Philadelphia. Virginia and Maryland experienced the same difficulty with regard to the borders of the Chesapeake and the great Virginia rivers, and Virginia and North Carolina on account of the sounds of North Carolina; while the Chesapeake came near enough to Pennsylvania to bring the northern and southern systems into collision with each other.

After various minor negotiations, a convention of commissioners from Virginia, Delaware, Pennsylvania, New Jersey, and New York met at Annapolis in 1786. Hamilton was a member of this convention, and wrote the address, which it adopted, and which was sent by Dickinson, the chairman, to Congress on the 14th of

began to defend, and in every suit where a loyalist was concerned, Mr. Hamilton was the loyal pleader. It is a certain fact that a great majority of the loyalists in the State of New York owe the restoration of their property solely to the exertions of this able orator." (Cheetham's Narrative, 55.)

September. The purport of it was that the federal government was inefficient, and that further provisions should be devised to render it adequate to the exigencies of the Union. They proposed that a convention should be called to revise the Articles of Confederation.¹ This led to the convention of May, 1787.

Hamilton's share in this convention was by no means proportioned to the interest which he had taken in the government up to this time. As soon as the convention met, it was found, very naturally, that there were different groups of persons in it, who had in their minds different ideas of what the proposed Union should be, especially as regarded the functions and the amount of power which should be given to it compared with what should be reserved to the States. We have seen that Hamilton entertained ideas which would have transferred all the most essential functions of civil life to the Union. He was therefore on the extreme of that wing, and could unite very few followers. He was on the Committee on Rules of the Convention, and contributed to the debate, having, as it appeared, important influence on special points, but by no means leading in determining the result. His two colleagues were strong anti-federalists, and threw the vote of the State against him. Unfortunately this left him in the position of an irreconcilable on the extreme federal side, the tradition of which position followed him and hurt him all his life. It is

¹ Journ. Cong., xii. 12. In Madison Papers, ii., Introductory to Debates of 1787, is a history of previous steps toward union.

difficult to see why a man should have been exposed to any more contumely if he was an extreme federalist, but gave the result his hearty support, than if he was an extreme anti-federalist, and gave the result a grudging support; but such was the fact. His two anti-federal colleagues, being extremists on the other wing, refused to sign the Constitution. They have never suffered any odium for this. It is true that they were comparatively obscure men. In a speech to the convention in June, Hamilton urged the economy of doing away with the State governments. He expressed fear that republican government was impracticable over a great extent of territory, but nevertheless he seemed to wish to reduce the States to some such position as the counties now occupy in the State. He expressed great admiration for the English Constitution, quoted Neckar that it "unites public strength with individual security," and quoted Hume that the corruption by the crown in England was an essential part of the weight which maintained the equilibrium of the Constitution. He also told them that liberty would make inequality. He was free from the terror of the big States, which was so strong among them.¹

He wanted a senate during good behaviour, and an executive on the same tenure; the latter to be elected through two sets of electors, and the former through one. The executive was to have a veto on all acts about to be passed. The government of the Union was to appoint the Governors of the States, and they

¹ Madison Papers, ii. 885, 886, 905, 907, 938, 966. Cf. Works ii. 270; viii. 607.

were to have a veto on State legislation in order to keep it consistent with federal legislation. The militia were to be entirely under the control of the Federal Government. He expressed great admiration for the House of Lords.¹ In the notes for his speech,² he says that his scheme was presented "not as a thing attainable by us, but as a model which we ought to approach as near as possible." If government is in the hands of the many, they will tyrannize over the few. It ought to be in the hands of both, and they should be separated. Gentlemen say we need to be rescued from the democracy, but what is the means proposed? A democratic assembly is to be checked by a democratic senate, and both these by a democratic chief magistrate. The end will not be answered; the means will not be equal to the object. "It is impossible to secure the Union by any modification of federal government. A league, offensive and defensive, is full of certain evils and greater dangers." He would balance advantages. He implies that his idea was consolidation. The States and the Union should each have a well-defined sphere, and they would not interfere.³ In a letter to Timothy Pickering in 1803

¹ Works, i. 371. See Curtis on the Constitution, 371 and 381, for a very careful analysis of Hamilton's plan and very judicious discussion of his opinions.

² Works, i. 357.

³ When John Quincy Adams first read the draft of Hamilton's plan, in 1837, he wrote (Diary, ix. 345): "The plan was theoretically better than that which was adopted, but energetic and approaching the British Constitution far closer, and such as the public opinions of that day never would have tolerated.

he said that the propositions thrown out in debate were understood to be only by way of suggestions for discussion. His final judgment was in favour of an executive for three years, and he modified his plan to that effect.¹

It seems plain that Hamilton's hearers did not understand him. They seem to have listened with astonishment to a man who contradicted some of the current commonplaces, and professed opinions which were, in their terms, political heresies of the worst kind. As nearly all of them did their thinking in the current phrases, they could not understand Hamilton's criticisms on those phrases, and his analyses of political notions which broke up the combinations of the accepted philosophy. It is not easy to seize the force of criticisms on democracy and republicanism so as to reproduce them fairly, but it is easy to say of a man that he "wants a king," or that he "does not trust the people," or that he is an "aristocrat." When therefore those who had heard Hamilton came to report what he had said, the reports took the latter form. He would have been wiser to be silent than to allow himself the idle pleasure of uttering opinions which could not even be understood.

After this speech he left the convention, and

Still less would it be endured by the democratic spirit of the present age, — far more democratic than that. . . . If Hamilton were now living, he would not dare, in an assembly of Americans, even with closed doors, to avow the opinions of this speech, or to present such a plan even as a speculation."

¹ Works, viii. 607.

was absent from June 29 to August 13. In July Washington wrote to him,¹ despairing of the convention: "The men who oppose a strong and energetic government are, in my opinion, narrow-minded politicians, or are under the influence of local views." The criticisms of Yates of New York and Martin of Maryland on the work of the convention manifest the persistency of the old whig ideas of the early revolution, and show, by the hostility of those ideas to the Union, how inconsistent they were with any civil institutions which would be capable of satisfying civil needs. The state of the case and the thing required are ignored, and the attention is all thrown on vague doctrines of political philosophy.

Upon his return to Philadelphia Hamilton gave earnest support to the adoption of the Constitution which had been prepared. After it had been published, the next and still more difficult task was to bring about its ratification by the States. We have already seen what very strong interests existed, which were perfectly conscious that they were threatened by this proposed civil organization, and which immediately drew together to resist it. There was also another which has not yet been mentioned. All the leaders of the second order in the different States felt that if a federal system was established, such as the Constitution proposed, it was very doubtful whether they would ever attain to its great offices. While therefore they occupied positions of importance in the States, if there was no federal system, they need not feel that there

¹ Washington, ix. 260.

was anybody above them ; but if there was a federal system, their State offices would lose in comparative importance. They were like the man who said that he was willing there should be a peerage, if he was sure that he would be one of the dukes ; but as he was sure that he would not, he would not consent to have any peerage. All the old alarm about liberty was now revived, and all the elements of anarchy and repudiation which had been growing so strong for twenty years were arrayed in hostility. Jay wrote to Jefferson, Oct. 27, 1786, referring to Shays's Rebellion : "A reluctance to taxes, an impatience of government, a rage for property, and little regard to the means of acquiring it, together with a desire of equality in all things, seem to actuate the mass of those who are uneasy in their circumstances."¹ He wrote to Jefferson, April 25, 1787, that Vermont was not inclined to be the fourteenth State, it was said. "Taxes and relaxed government agree but ill."² Trumbull wrote to Washington, Nov. 15, 1783, what held true throughout the period : "It is but too true that some few are wicked enough to hope that by means of this clamour they may be able to rid themselves of the whole public debt, by introducing so much confusion and disorder into public measures as shall eventually produce a general abolition of the whole."³

Patrick Henry proposed another general convention, to be held as soon as possible.⁴ Lincoln wrote from Boston : "We find ourselves exceedingly em-

¹ Dip. Corr. U. S., iii. 114.

³ Letters to Washington, iv. 52.

² Ibid., 226.

⁴ Ibid., 241.

barrassed by the temper which raged the last winter in some of the counties. Many of the insurgents are in the convention, even some of Shays's officers."¹ Another letter said that the parties opposed to the Constitution in that State were, first, friends of paper money and tender laws; second, the late insurgents; third, a great majority of the members from Maine.² In Pennsylvania ratification was mixed up with the politics of that State, which had been extremely bitter ever since the beginning of the Revolution. The articles of "*Centinel*" began in a moderate tone, but gradually became more and more personal and virulent, and then degenerated into the style which was used later by Duane and Callender.³ The constitutionalists — that is, supporters of the Constitution of Pennsylvania — were the opponents of the Federal Constitution. Hamilton thus summed up the elements of expected opposition to the adoption of the Constitution: disinclination to taxation, fear of the enforcement of debts, democratic jealousy of important officials, and the influence of foreign powers.⁴

The New York convention met in June, 1788. Hamilton was a member of it, and exerted himself with remarkable energy to secure the adoption. The

¹ Letters to Washington, iv. 206.

² *Ibid.*, 207.

³ McMaster & Stone, 565. These articles ran for over a year in the "*Independent Gazetteer*," and are especially interesting on account of the comparison with the "*Federalist*" which irresistibly suggests itself. We are indebted to Mr. Paul Ford for the discovery that "*Centinel*" was Samuel Bryan. (Work quoted, 6, note.)

⁴ Works, i. 401.

opponents of the Constitution had two thirds of the convention, and numbered four sevenths of the community. Their strength was in the country, while New York City favoured the Constitution. The opponents were restrained somewhat by a fear lest the city and southern counties might split off. Hamilton said : " For my own part, the more I can penetrate the views of the anti-federal party in this State, the more I dread the consequences of the non-adoption of the Constitution by any of the other States, — the more I fear an eventual disunion and civil war." The idea of the opposition was for New York to hold back and let the others try it. If the Union succeeded, they could come in, although they expected that revenue difficulties would break it up immediately.² The fact here stated, and the apparent willingness of Hamilton to agree to a conditional ratification by New York³ must be taken as complete demonstration that even the most advanced federalists did not suppose that the States were forming an irrevocable union.

Hamilton arranged with Madison for an express to bring news of the Virginia convention, and with Sullivan for an express to bring news of the New Hampshire convention. As soon as he obtained the news of ratification by New Hampshire, he sent it to Virginia. He employed his utmost eloquence to carry the ratification, emphasizing the point about the public debt. " It is a fact that should strike us with shame that we are obliged to borrow money in

¹ Works, viii. 187.² Ibid., 187.³ Ibid., 191.

order to pay the interest of our debt. It is a fact that these debts are accumulating every day by compound interest." ¹ He appeared to be afraid that he was carried away by his own zeal, and he apologized for it, saying, "If such has been my language, it was from the habit of using strong phrases to express my ideas." ² He declared that in the old confederation the idea of liberty was alone considered, but that there was another thing equally important, — "I mean a principle of strength and stability in the organization of our government, and of vigor in its operations." ³ This passage might serve as the text of his work in that convention.

The "Federalist" has come to stand on our shelves, next to the Constitution, as the first great text-book upon it. By far the largest part of it was written by Hamilton, in the practice of his usual method of acting on the formation of public opinion by periodical essays. In the last number of this series ⁴ he said: "The system, though it may not be perfect in every part, is upon the whole a good one, is the best that the present views and circumstances will permit, and is such an one as promises every species of security which a reasonable people can desire." It is a strange fact that the man who did all this for the Constitution should have suffered all his life under a popular suspicion that he was not loyal to it. In the "Federalist" nothing is said about the debts, and comparatively little about the Supreme Court. This is very remark-

¹ Hamilton, i. 491.

² Works, i. 449.

³ Works, i. 495.

⁴ Ibid., ix. 548.

able, in view of the subsequent history ; for if there is any “ sleeping giant ” in the Constitution, it has proved to be in the power of the Supreme Court to pass upon the constitutionality of laws. It does not appear that Hamilton or anybody else foresaw that this function of the court would build up upon the written Constitution a body of living constitutional law. It is very possible that Hamilton may have thought that the Constitution of 1787 was a step of gain on the Articles of Confederation, but that it would be superseded as they had been by some new constitution which would go farther toward converting the Union into an imperial state, — that is, in the direction of what the opposing party always called “ consolidation.” The same effect has been produced by interpretation on the document of 1787, and by the amendments.

The Congress of the Confederation, having left Philadelphia in anger, was not willing to return thither, although the Philadelphians were very eager that it should. It could not find satisfactory quarters anywhere else. This led it to wander about from place to place, — a fact which undoubtedly lowered its prestige ; for people did not know where it was, or what it was about, and almost forgot its existence. It was able to obtain a necessary quorum for important business, nine States, only for a few days, or at most a few weeks at a time. Hence those who wanted to see the Confederation dwindle and die were perfectly satisfied ; and they seized upon some rumours that there had been aristocratic and monarchical propositions in the convention, and endeavoured to spread

fears that there was a secret intention, hostile to republicanism. Although these fears were absurd, they were very far indeed from lacking effect, and all the events of the succeeding ten or twelve years were taken to be proof of their truth. There never was a time when a king of the United States would not have been perfectly ridiculous, and his position utterly untenable; not because of any laws or resolutions, but in the very circumstances of the case. No opera bouffe could possibly caricature such a personage.¹

If now we look back for a moment at the course of the movement toward union, we can form an idea of what the Union was when the first Congress assembled; for

¹ In 1792 Hamilton wrote to Washington, commenting on this charge that there was a monarchical faction: "The idea of introducing a monarchy or aristocracy into this country, by employing the influence and force of a government continually changing hands toward it, is one of those visionary things that none but madmen could meditate, and that no wise man will believe. If it could be done at all, which is utterly incredible, it would require a long series of time, certainly beyond the life of any individual to effect it. Who, then, would enter into such a plot? For what purpose of interest or ambition?" (Works, ii. 267.) In 1800 it was one of the campaign stories in Pennsylvania, which obtained much belief, that Adams intended to marry one of his children to one of George the Third's children, and that Washington had quarrelled with him on this account. (Graydon, 392.) At the same time the story of the monarchical faction in the convention of 1789 had grown into the shape that Hamilton and others had a plot to bring over the second son of the King of England and make him King of the United States. Hamilton tried to follow up this story and unearth its origin, but of course it all evaporated at the first attempt. (Works, viii. 610.)

if we have an idea that it was clearly understood what sort of thing the new system would be in operation, and that people who read the document would obtain any conception of the modern state which goes under the name of the United States, we shall make a great mistake. We have seen that the first Congress of 1774 was nothing but a conference of bodies which were entirely independent and distinct. That of 1775 differed only in having more serious business. That of 1776 began to plan a confederation which should have a constitutional definition. Still it was an abstraction created by convention. The States held the territory and were States; the Confederation was an alliance, and it came near becoming obsolete by falling into desuetude. Then a new effort was made, using the experience of the past, to establish a new creation in the way of a unity of the States in a political body which should be a state, having a distinct and independent existence. The question still remained, however, how much of a state the Union was, and what the limit of function between it and the States would be. It was possible to argue and reason about that by attempting to interpret the language of the document, but it has taken a century of national life and a civil war to actually determine it. At the beginning, when none of this work was yet done, every step which was taken was contributing, by way of precedent, to mould the result.

The great majority of the people disliked the idea of a government with a large body of splendid officers living on salaries, and administering an army, a navy,

diplomatic relations, and so on, like the great nations of the Old World. They knew that one of the States never would grow into that; but it seemed that the Union was created expressly for it, and they did not see any necessity for it. It is also worthy of particular notice that, between 1783 and 1789, the Continental Congress year by year demanded of the people sums of money for a peace establishment far beyond what was necessary, and that the people, by refusing the funds, forced the retrenchment or abandonment of the main features of a great civil establishment, which in fact was not needed. When the Union was formed, therefore, everything led to a struggle between two tendencies of opinion. In the truest sense federalism meant the system and philosophy of union into a *federated* state, but a *true* state, having unity, independent vitality, and adequate capacity. Anti-federalism meant the system and philosophy of a group of States, co-operating with one another voluntarily in ways and for purposes that had been agreed upon. Callender said that the Constitution was "crammed down the gullet of America."¹ John Quincy Adams said, with more elegance, that it was "extorted from the grinding necessity of a reluctant people."

Until after the second war with England, the continuity of the Union was always in question.² In

¹ Prospect, 10.

² In 1796 the Duc de Liancourt thought that the Union would break up before one tenth of the federal city was built. (Liancourt, vi. 149.)

every excited and important debate, even on measures of the second or third order, the defeated party uttered murmurs and threats against the Union. The growth from a point at which some States united up to the point at which there is a United State, constitutes the history of the Union.

CHAPTER X.

HAMILTON'S MEASURES : FUNDING ; HIS POLITICAL ECONOMY ON DEBT, ETC. ; ASSUMPTION ; PARTY WAR ; THE SINKING FUND ; CRITICISM ; NATIONAL BANK ; POLITICAL ECONOMY OF BANKS ; BANK WAR ; MINT AND COINAGE.

THE Union having been formed, Hamilton was immediately called to the head of the Treasury, which he speedily made the most important office in the government. The great measures which he brought forward for organizing the government and getting those things done which he had so long thought needed to be done, now demand our attention.

During the Revolution the constant cry was "Credit ! credit ! How can we get the things which we need now for the purposes of winning our independence, and have the payment for them deferred until, having won our independence, we can bring our resources to bear so as to pay?" The debt to France had been arranged so that the instalments might become due from 1787 on ; but on the 1st of January, 1790, not only had the instalments not been paid, but the interest had not been paid on a part of it for six years, on a part for five, and on a part for four. The interest on the debt to Spain had not been paid for

seven years. Hamilton took up this matter first. There was no contest about the payment of the foreign debt. As to the domestic debt, a struggle arose immediately over the question whether the debt should be paid at its full face to the assignees who had bought the certificates during the last ten years from the persons to whom they were first issued. Hamilton held that it should be paid to the assignee. The government, and not he, was guilty. He bought at the market. Hamilton shows the impracticability of any other plan. He estimated the current expenses at six hundred thousand dollars, and the total interest on the debt at \$2,839,162.¹

He proposed a system of import duties which should be made to produce an amount of revenue to meet these expenditures. An opposition to this proposition was immediately developed. There were those who objected to funding altogether, and those who proposed different methods of dealing, as between the original holders and the assignees. Maclay, for instance, would have paid three per cent as an interim, "and place it on the footing of disability to do more." He also objected to funding the interest. He wanted a land office to be opened, and to sink the interest now due and to give indents for it, receivable at the land office. He declared that "even prodigals abhorred compound interest."² This was the most popular position among the rank and file of the opponents. It was simply repudiation on the footing

¹ Report on Public Credit, Folio State Papers, Finance, i. 15.

² Maclay, 225.

of disability to pay, and the land office was to throw the public creditors into a system of land mongering, to get their pay if they could. Maclay's argument was that Congress was not a party to the debt. He says that the people are the debtors, the holders of the obligations are the creditors, and Congress is the umpire between them. Law should rule the court, but justice should be the guide of Congress, as it has been of all legislation "from the Jewish jubilee to the present day."¹ He could not get anybody to second his plan of a land office redemption for the indents of back interest. He likewise puts forward the objection that the debt should not be charged on posterity, especially irredeemable debts. "I am convinced that they will one day negative the legacy." He ascribes the English wars to the funding system, speculation, and jobs; thinks that England is sure to come to bankruptcy. He argued that the revenue already established would pay interest "proportionate to the market price of the public debt until the whole is extinguished by the Western sales."² He undoubtedly represented the opinion of respectable men, not the great leaders of the party, nor its uneducated following.

In a pamphlet, "Inquiry into the Principles and Tendency of certain Public Measures," ascribed to John Taylor, Senator from Virginia (1794), it was asserted that the funding system was intended to effect what the bank was contrived to accelerate,— (1) accumulation of great wealth in a few hands; (2) a

¹ Maclay, 229.

² Ibid., 257.

political moneyed engine ; (3) a suppression of the Republican State Assemblies by depriving them of the political importance resulting from the imposition and dispensation of taxes.

Of course the immediate effect of funding was that the securities advanced in value. It was denounced as speculation, and even as fraud, although it really put an end to speculation. There can be speculation only where there is fluctuation in value. This had been the case during the previous ten years, when there was great doubt whether the certificates would ever be paid, and how they would be paid. After the funding they were elevated to the character of the highest securities on the market, in which there was very little fluctuation and consequently very little speculation.

Hamilton wrote two papers in defence of the funding system, after he left office, which had never been published until Lodge's edition of his works. They are both extremely able papers, the second being altogether the best paper which we possess from his hand. He says that there were two sects of heretics, — one who wanted to discriminate between the original holders and the alienees ; second, those who would provide equally for all, but at a lower rate of interest than that in the bond. And there were subdivisions of these.¹ In his address to the electors of New York in 1801, he says : " What is the funding system ? It is nothing more nor less than the pledging of adequate funds or revenue for paying the interest, and

¹ Works, vii. 378, 414.

for the gradual redemption of the principal of that very debt which was the sacred price of independence. . . . What have been the effects of this system? An extension of commerce and manufactures, the rapid growth of our cities and towns, the consequent prosperity of agriculture, and the advancement of the farming interest. All this was effected by giving life and activity to a capital in the public obligations which was before dead, and by converting it into a powerful instrument of mercantile and other industrious enterprise.”¹

The “funding system” was a thing of English tradition; and as we have already seen, anything which had some taint of English abuse upon it was regarded with superstitious dread. It does not appear that they understood very well what the funding system was; but as it was applied here by Hamilton, it had none of the vices of the English funding system, which, after all, could be resolved into allowing the expenditures to exceed the revenue. That is not a system. A great deal of the argument against funding would have been pertinent at the time of contracting the debt, but was singularly non-pertinent when the proposition was to keep a promise already made, and to take the poor old battered “faith of the continent” out of pledge. At that point, to talk about the evils of a debt and the woes of posterity seemed absurd. The provision for it was indispensable in the public interest. It was a simple, straightforward duty.

¹ Works, vii. 188.

It is desired here, in connection with each of the great financial measures proposed by Hamilton, to make some examination of the doctrines enunciated by him.

In a passage from Hamilton which has been quoted above, it may be noticed that he puts forward a doctrine with regard to the life and activity given to a capital, which before was dead, by means of funding. In his bank scheme which he sent to Morris in 1781, he said: "A national debt, if it is not excessive, will be to us a national blessing. It will be a powerful cement of our union." He added that Americans were too indolent, and that taxation would be a valuable spur to them.¹ In the report on the manufactures, to be noticed below, he says that a funded debt is capital. Some, fearing accumulation of debt, will not allow to a debt any utility, but things are seldom unmixed good or ill. We must get at the facts, and find out how far they are either. "Neither will it follow that an accumulation of debt is desirable because a certain degree of it operates as capital. There may be a plethora in the political as in the natural body. There may be a state of things in which any such artificial capital is unnecessary. The debt, too, may be swelled to such a size as that the greatest part of it may cease to be useful as a capital, serving only to pamper the dissipation of idle and dissolute individuals," or the interest may become oppressive to public finance, and the taxes use up national resources. In a newspaper article in 1792, he replies

¹ Works, iii. 124.

to those who have charged him with saying that public debts are public blessings. He says the assertion is that funding the debt will render it a blessing, and, referring to the passage just quoted, he interprets it to mean that a funded debt operates as capital. He says that before the Revolution "a great part of the circulation was carried on by paper money;" that this was destroyed during the war by events which also destroyed "a large proportion of the moneyed and mercantile capital of the country, and of personal property generally. It was natural to think that the chasm created by these circumstances required to be supplied, and a just theory was sufficient to demonstrate that a funded debt would answer the end."¹ In the "Vindication of Funding," written about 1795,² he refers to the same passage from his report on manufactures for the doctrine that a public debt is capital, and adds that if a government borrows a hundred dollars, it spends it, and that is capital; while the bond may be sold, and is another. Thus the credit of government produces a new capital of a hundred dollars. If what is borrowed is spent abroad, the case is different. In the next paragraph he dwells on the disparity between the sum of negotiations and the amount of money by which they are made. These notions show a remarkable amount of confusion in regard to money, capital, and debt, in the mind of a man who has a great reputation as a financier. Robert Morris had once put forward some of the same ideas. He argued that a public

¹ Works, ii. 321.² Ibid., vii. 407.

debt locked up the capital of the public creditor, and that these debts were in a manner dead, and would be brought back into existence by funding. This would free the capital of creditors. Capitalists would buy up the debt of the holders.¹

So far as the destruction of the old paper money was concerned, it could not produce any chasm in the circulation. It is as impossible to make a chasm in the circulation as to dig a hole in water. We have abundant testimony that gold and silver came into circulation in 1780 and 1781 as fast as the continental paper fell into disuse. The specie prices were extremely low compared with those which had prevailed in paper. The man who had to part with goods or services to obtain specie with which to pay taxes or debts, might well think that the "medium was insufficient."

The depreciation of the continental paper inflicted a loss on the different holders of it while it was on the way down, who gave goods and services for it at a higher rate than that at which they received goods and services for it. They therefore parted with goods and services to carry on the war, and the depreciation operated as a tax, according to the observation of all the contemporary writers. It was, however, the most cruel, insidious, and unequal tax conceivable, for it taxed a man in proportion to the time that he held the notes, and not in proportion to anything else. A man of large means could, by keeping on the debtor side, save himself from all loss; but a man of small

¹ Dip. Corr. Rev., xii. 222.

means, on the creditor side, was the greatest sufferer. Those who suffered by the depreciation, then, had contributed real capital for the work of the war. No subsequent funding could reach them, unless it provided payment for notes still in their hands, which would be only in a very small degree. No funding nor other operation of any kind known could go back and unravel such a series of operations and defaults, to undo, in any degree whatever, the injustice produced by them ; for its only possible effect would be to pretend to balance them by a new set of injustices.

The reason for funding was to fulfil contracts which existed in full legal form, and therefore needed to be performed according to their tenour. The operation, however, could not revive or recall a capital wasted ten years before. We may make good a capital, but capital once used up in an operation not industrially reproductive is gone forever. If a hundred dollars' worth of flour was consumed by soldiers in 1776, while in the field, they reproduced no capital to replace it. If the producer of the flour had a certificate for a hundred dollars, which was not paid, it might lie in his desk as a worthless piece of paper, the record of a dishonoured claim, which had no market value. If he found a purchaser for it at ten cents on the dollar, and sold it, the transaction concerned nobody but those two, because they made a contract which included a consenting judgment between them as to the value at that time of the chance that the dishonoured promise might some day be kept, in whole or in part. If then the assignee held the paper

in his desk, it had in no wise changed its character, and the original debtor, the United States, had nothing to do with the transfer.

If now in 1790 the government determined to keep its promise, it provided that the taxpayers of the United States should, out of their earnings, re-constitute a capital of a hundred dollars' value, and transfer it to the holder of the certificate, in replacement of the capital consumed in 1776. This new capital to be constituted, in some years subsequent to 1790, was evidently not a second capital, because there was no first one. If the taxpayers, after 1790, had kept their products, the capital would have been the same in their hands that it was after it was transferred to the bondholder, and the certificate burned up. In strictness, therefore, the taxes did not replace the *capital* of 1776, but only the *property* of 1776, and affected the personal interests of individuals, and not at all the wealth of the country.

The promise that this operation should be performed brought the certificate out of the desk of the owner and gave it a market value. Let us suppose that it raised it to par. If then the holder parted with it to some one else for a hundred dollars, that was merely a transfer between the two men of two things previously existing, — the certificate on one side, and the hundred dollars on the other, — and could not affect the wealth of the country. In no sense, therefore, did funding the debt create a capital, or a new capital, or a second capital, or in any way add to the wealth of the country. Obviously its only effect could

lie where the debt lay ; namely, in the field of contracts, property rights, and personal interests. The only way in which it could contribute at all to the industrial interests of the community, taken as a whole, was in case it affected the relations of this community as a whole to some other community as a whole. In that respect its effect was the exact opposite of what Hamilton supposed. It was only in the case that these certificates, which had formerly been destitute of market value, but now had obtained market value, should be exported in exchange for real capital brought into the United States to be employed where it could earn ten or twenty per cent, while the interest paid for it was only six, that the funding of the debt could act upon the industrial and commercial interests of the American people.

The next enterprise undertaken by Hamilton was the assumption of the State debts. In his mind, this enterprise and the first one were inseparable parts of the same whole ; but assumption stood upon a very different footing. It was a matter of political expediency, not of simple financial rectitude ; and its expediency remains in doubt to this day. Assumption certainly produced great political disturbance and bitterness. It was not absolutely called for, but was gratuitously undertaken by the Federal Government ; and it has always remained an open question whether the Federal Government might not properly have allowed the whole matter of the State debts to stay where it was, leaving the States to manage the debts as they could.

In March, 1783, Congress had resolved: "All reasonable expenses which shall have been incurred by the States without the sanction of Congress in their defence against or attacks upon British or savage enemies, either by sea or land, and which shall be supported by satisfactory proof, shall be considered as part of the common charges incident to the present war, and be allowed as such."¹ The States had all held back, lest one should do more than another, because they had no confidence that they could recover from each other. They had therefore borne very unequally the burdens of the war. It had always been recognized as the ideal system for the Confederation that it should have a common treasury, out of which all the common burdens should be borne. It was now proposed to consolidate all the debts of the thirteen States into a debt of the Union. In a paper which he wrote for Washington in 1792,² to meet objections which were brought against the federal system, Hamilton gave the reasons for assumption. The first was to consolidate the finances. He speaks of scramblings for revenue between the States as if he meant to have all the State finances united, so as to have only one system of revenue and expenditure for the entire country, and that one federal; but elsewhere he refers to State finance as if he expected that it would still present its own problems. His next reason for assumption was to secure to the Union resources for present and future exigencies,

¹ Journ. Cong., viii. 115.

² Works, ii. 246.

to equalize the conditions of citizens in the different States, lest some should have heavy burdens and some light, on account of their different exertions in the war, or because some had chance resources which others had not. This led to the necessity of the excise taxes; but he thinks that it was in general expedient that the Union should at once get possession of the excises as a resource, before the States seized it. In his second paper on the funding system, written after he left office,¹ he makes a very careful and elaborate defence of assumption. According to that, the leading ideas in his mind were as follows: He put himself upon national ground with respect to the cost of independence, and its value to every citizen of the Union, and he aimed to re-distribute the cost in a way which would satisfy that idea. He likewise wanted the Federal Government to have at its disposal the entire resources; and finally, he had a motive of political expediency, which we may well believe was the controlling motive in 1790, although in 1795 he thought that it had not been so. He expresses this by alleging in favour of assumption, "its tendency to strengthen our infant government by increasing the number of ligaments between the government and the interests of individuals." His argument under the first of these heads shows that he was reaching out to interfere with, and correct action by the States which seemed to him either negligent or unjust, and that he could not bear to think that the States were not behaving as he thought they should

¹ Works, vii. 423.

toward their creditors.¹ This reasoning, although it was creditable to his sense of justice, is not strong when regarded from the political point of view. It remained true that he was reaching out for a duty which did not necessarily devolve upon him, and was exposing the Federal Government to a new trial, when he thought that he was winning strength for it. He saw that it would be necessary to fight a great fight, to lay vexatious taxes, and incur odium ; but he thought that it would have been pusillanimous in him to give it up on that account.

This matter was connected with the adjustment of the outstanding accounts between the Federal Government and the States for requisitions. That also was complicated by the difficulties of justice. The accounts had not been kept in a similar manner in the different States ; there had not been uniformity in the book-keeping, or in the interpretation of the details of the system, so that for instance in New York, as Hamilton said,² everybody regarded the balance of the account against that State as "wholly artificial, . . . manifestly unjust, and that consequently there is no justice in paying it." That was the point at which Gallatin directed his criticism of assumption ; and he showed that by taking into account the balances of the accounts between the States and the Federal Government, the Federal Government might have

¹ "This [injustice of the States] may seem to have been no concern of the General Government, but the cause of credit and property is one throughout the States." (Works, vii. 451.)

² Works, viii. 444.

done as much for the States as it did do, while making the federal debt only half as great as it did make it.¹ This statement was true ; but in the first place, it dealt only with the balances of the actual sums paid by the States on requisitions, and left out of account the other facts with regard to the burdens borne by the States for the purposes of the war, which filled so large a part of Hamilton's thinking on the subject ; and in the second place, Gallatin was looking at the matter as if the Federal Government was trying to help the States, which, as he said, it could have done to a similar degree at much less expense to itself, by the book-keeping readjustments which he proposed ; while Hamilton was not thinking of it as help extended to the States, but as a consolidation of public obligations, which he thought would produce great political and financial advantages. The real answer to Gallatin would be that there was no reason whatever for assumption, if it had been proposed to do it on the ideas which he adopted.

Another grade of objection is well represented by Maclay.² He referred assumption directly to the main issue involved in it : "The reduction of the State governments was the object in theory in forming both the Constitution and the Judiciary, and in as many laws of the United States as were capable of taking a tincture of that kind ; but it won't do." He says that the court party have assumption much at heart.

The measure was carried at last by a combination

¹ Gallatin's Writings, iii. 121.

² Maclay, 191.

between its advocates and those who wanted to fix the federal capital on the Potomac. The intrigues on this point were numerous, and ran in many directions. In the sequel, the opposition declaimed fiercely against the corrupt bargain by which this combination was carried; and Jefferson, who really made the combination with Hamilton, threw the odium of it off himself by representing himself as the dupe of Hamilton. However, the fact of the case was that this was the combination which succeeded where a great variety of others were proposed and tried.¹

In the writings of Bache, Duane, and Callender, assumption was denounced in the most vehement language, as fraudulent and corrupt, intended to form a corrupt cohort in the Legislature, which should be under the control of Hamilton. They regarded it as fraudulent and corrupt for a member of Congress to own bonds of the State or nation, since it was necessary to legislate about the debts in a way which would affect their value; and they complained that the liberty of the government to pay off the debt was restricted by the terms on which it was funded. They also maintained that the volume of the debt had been arbitrarily and unnecessarily increased for the mere sake of having a big debt, as if it were a blessing, of which there could not be too much. This idea they borrowed and exaggerated from Galatin. They also put forward an idea which was derived from some of the book-keeping intricacies of

¹ Maclay, 226, 250.

assumption, that the debtor and creditor sides of the account had been added together. Their argument about this rested upon the fact that the debt of the States to the Federal Government on the balance of account was a debt of honour, and one for which no negotiable securities existed. If then the total of existing indebtedness was sought, this debt could be included ; but if this debt was regarded as one which never could be collected, then it might be thrown out of account. The difference between these two ways of looking at the matter, of course, amounted to twice the debt of the States to the Federal Government.

In connection with his system of funding, Hamilton established a sinking fund. He was under the dominion of strong English ideas with regard to the value of a sinking fund, thinking that it was the way to make public credit immortal,¹ and he supposed the fund to be the security on which the public creditor would fix his mind for confidence that he would be paid. By an Act of the 4th of August, 1790, the proceeds of the sales of land were appropriated exclusively to the payment of the debt ; and on the 12th another Act was passed, appropriating surplus revenue to the purchase of the debt, at not more than the par value of the bond. The Act of May 8, 1792, constituted the sinking-fund commission of the Vice-President, Chief-Justice, Secretaries of State and the Treasury, and the Attorney-General. They

¹ The report of Jan. 14, 1790, that on manufactures, and that of 1795, on public credit, all contain strong passages to this effect.

were to administer the redemption of the debt within the limits of the right reserved ; namely, two dollars on the principal of each hundred dollars per annum. In 1795 they were charged with the duty of administering the payment of the interest, and were authorized to borrow within the year in order to secure punctuality in these payments.

In criticising the sinking fund, it is necessary to distinguish between the fallacy of a sinking fund, and the incidental mischiefs which may arise from it. The object of making a fixed appropriation every year to the sinking fund is to make sure that the amount of provision for the payment of the debt will go into each year's tax levy, and that the gain from the payments which are made will not simply be absorbed in a relief from taxation ; but on the other hand, the fixed appropriation involves the danger that the sum in the sinking fund will be taken in some period of financial distress, and the further danger that on account of some necessity of borrowing, the Treasury will be borrowing at a high rate on one side while paying off a debt which stands at a low rate of interest on the other ; and still further, if the gain from the payments already made on the debt is taken in a remission of taxation, all the advantage is won which could really be won from the sinking fund under any other arrangement.

These, however, are incidental evils ; for there may be a strict administration of the finances, and it may not be necessary to borrow, and the public may win equal advantage from a sinking fund with

what they could win in any other way. The real fallacy of a sinking fund is in the supposition that there is any device under that name by which anything more can be accomplished for the payment of the debt, than is accomplished by simply saving as much as possible from the current revenue, and applying that to the payment of the debt for so much as it may amount to.

In the sinking fund of the United States there was no fixed appropriation until 1802, but in 1792 the commissioners were authorized to borrow if necessary a sufficient sum to pay any part of the principal of the debt which should become due. Hamilton seemed to be strenuous about the faithful appropriation of *specified revenues* to the sinking fund, which was a very laudable care. He wrote a very earnest protest to Washington, against the sale of the bank stock, in 1796, because the dividends from it were pledged to the sinking fund.¹ His sinking fund was therefore free from all the fallacies of the English notions on that subject of the period, but it was subject to incidental evils, which in its later history were realized.

Hamilton's next proposition was for a national bank.² This enterprise also was not essential to the work of the Federal Government. It had the character of an independent undertaking, not to meet an experienced exigency, but to accomplish a beneficial result conceived of and anticipated by the pro-

¹ Works, viii. 401.

² Folio State Papers, Finance, i. 67.

jector. Of course it was a development and realization of Hamilton's earlier projects of the same kind. The Bank Act was passed Feb. 25, 1791. The bank was to last for twenty years. It had a capital of ten millions, the shares being four hundred dollars each. The United States subscribed two million dollars, for which it gave its bonds to the bank. One fourth of the subscription by individuals was to be paid in specie, the rest in bonds of the public debt. The subscriptions were payable in four instalments, semi-annually, — an arrangement which led to a great speculation in the subscriptions during 1792, and resulted in a financial crisis at New York.¹ Eight branches were established, as Hamilton says, without his co-operation, and in fact against his judgment.² The notes were receivable in all payments to the United States.

This bank paid more than eight per cent per annum dividend during its existence, and its stock was quoted at from twenty to forty per cent above par.³

The country undoubtedly needed, at this period, some banking institutions to bring into full activity the capital possessed by its people. This was a need, not of the government, but of the people, and banks were already being formed to satisfy the need. The necessity that the United States government should proceed to provide an institution of this kind was never established. This bank was very much more like the Bank of England than either of the previous

¹ Works, ii. 235; viii. 227, 233, 240, 245.

² Ibid., viii. 237.

³ Seybert's Statistics, 520.

projects which Hamilton had put forward. In the fundamental principles of its constitution it was, as the Bank of England originally was, a syndicate of holders of the public debt who were incorporated and granted a monopoly of issuing notes, as far as the power of the Federal Government could control that monopoly. There was no need, in the case of the Bank of the United States, of allowing subscriptions in the public debt. The public debt was all provided for independently of the bank. This was only a measure for carrying out another notion which was stigmatized as English, with more reason than in other cases; namely, that of interweaving the interests of wealthy men with those of the government. The government of the United States never realized any gain whatever from this device. The expectation was unfounded and illusory, and the opposition were justified in saying that if it had been real, it would have been derogatory to the government.

Another very great vice in Hamilton's bank was the arrangement by which the United States government, being itself at the time impecunious, subscribed stock in the bank and gave its note for the subscription. This example was imitated with ruinous effect by private individuals in the United States during the next fifty years or more. Very naturally, impecunious individuals inferred that if a number of them combined and put in their stock notes, they could make a bank and win the same advantages which the impecunious government had won. This bank therefore planted the seeds of the wild-cat

banking with which the United States was cursed until the civil war, and also the vices, fallacies, and political disturbances of Jackson's bank war may be traced up to it in no small degree. The opposition party paid Hamilton the homage in 1816 of imitating his bank very closely, including its worst faults; that is to say, when themselves in financial straits, they knew of no better measures to adopt than those devices of his which they had most vehemently abused. This may, in fact, be said of the entire financial system which they adopted in the second war.

Let us now see what Hamilton's doctrines were on the subject of banks and money.

In his letter to Duane in 1780 he said that a tax in kind was necessary, because "the money in circulation is not a sufficient representative of the productions of the country, and consequently no revenue raised from it as a medium can be a competent representative of that part of the product of the country which it is bound to contribute to the support of the public." In 1781 he said¹ that land ought not to be heavily taxed, because if it is, it will drive population to the new land. Labour is and will be dear, "to reduce which, and not to increase it, ought to be a capital object of our policy." He also maintained that taxation on goods was divided between the buyer and seller according to supply and demand. In his bank scheme of 1781 he said: "The tendency of a national bank is to increase public and private

¹ Works, i. 265.

credit." And again: "The real wealth of a nation consisting in its labour and commodities, is to be estimated by the sign of that wealth, its circulating cash." And again: "Our paper was in its nature liable to depreciation, because it had no funds for its support, and was not upheld by private credit. . . . No paper credit can be substantial or durable which has not funds [that is, taxes or other revenues provided for its redemption], and which does not unite immediately the interests and influence of the moneyed men in its establishment and preservation. A credit begun on this basis will, in process of time, greatly exceed its funds. But this requires time and a well settled opinion in its favour." In 1782 he wrote to Morris¹ that the wheels of circulation were clogged for want of commerce and a sufficient medium. Mentor answered to Phocion, in 1784: "Money is a conveniency, not an article of trade. Being such, wherever trade centres, money will." In his reply to Mentor, Hamilton took no notice of this. In the "Federalist" he speaks of "the real scarcity of money incident to a languid and mutilated state of trade."² In his report on the public credit he says that he wants to contract a loan abroad, because to pay the instalments due on the American debt abroad would drain off specie. In his report on the national bank he tries to state the advantages of a bank. He mentions the "augmentation of the active or productive capital of a country." "Gold and silver, when they are employed merely as the instrument of exchange

¹ Works, viii. 70.

² Ibid., ix. 69.

and alienation, have been, not improperly, denominated dead stock, but when deposited in bank to become the basis of a paper circulation which takes their character and place, as the signs or representatives of value, they then acquire life, or in other words, an active and productive quality." He explains this by saying that money in a merchant's chest is idle, but put in a bank yields profit. "It is a well established fact that banks in good credit can circulate a far greater sum than the actual quantum of their capital in gold and silver." The advantages he expects from a national bank are, loans to government, and facilitation of the payment of taxes.

In these passages we see that he was under the dominion of the most vicious fallacies with regard to money and banking, and that his idea of a bank did not go beyond some of the most vulgar misconceptions about it. Banks do not increase capital in the slightest degree. They make nothing; they are a part of the industrial organization, and their utility, which can hardly be overestimated, consists in heightening the circulating movement in the organization in a way which makes a certain amount of capital very much more effective. They therefore affect the relations of capital and of producers in the way of credit. These, however, are relations, not things. The idea that a bank, by some magic or other, gives validity to a fiction, must be entirely discarded. This is the notion which lies at the basis of the devices for floating some large amount of paper money on a small basis, which we detect in the above passages. If there were

no banks and no paper money, and if everybody who bought anything, handed over a bag of specie, in payment for it, everybody would be obliged to keep on hand a large amount of specie all the time. This would be an investment of so much of his capital, and would lessen the amount which he could employ productively in his industry. This is the only sense in which a specie capital could be said to be "dead." It is evident that in this mode of doing business there would be a constant carrying backward and forward of bags of specie, while it would also be found that the transactions admitted of a cancellation, so that the money might lie still and not be carried at all, provided only that some record could be made of the transactions, so as to find out where the cancellation would fall. Practically it would be impossible for anybody, even if he had the record, to oversee and comprehend it so as to indicate the cancellations. The first automatic device for accomplishing them is bookkeeping. The next step is, not only to carry the accounts on a ledger, but to put them in current form, so that they can be negotiated. When this is done, the negotiable instruments can be bought and sold any number of times during a convenient interval, and then be brought to the record on the books for cancellation of the accounts, whereupon the negotiable instruments disappear. The bank notes are simply a very convenient and universal form of these negotiable instruments, and their amount is determined by the necessities and the convenience of the business to be done. The thing which floats them is

the equivalence of the transactions in the market, where the buyings equal the sellings, and the payments equal the loans. Banks therefore, whether they issue or not, economize enormously the investment in specie, not because, if they issue, they put a cheap kind of money in place of it, but because they obviate the necessity of using it. They also greatly accelerate all the transactions, both of exchange and production, because they give promptitude both to the advances and the returns of capital, and render production and exchange, in effect, continuous, where they would otherwise be broken by intervals at the successive steps of the operation.

The bank also brought out a vehement onslaught from the opposition. It was regarded as containing a privilege for those who could get into it, and we must observe that there was always present a large element of envy toward any superiority or advantage, which led a certain party to aim to destroy it or pull it down, rather than that anybody else should enjoy it while they could not. Taylor, in the pamphlet previously mentioned,¹ stated the doctrine which he held as follows : " Debt is service or labour, and service or labour is slavery. . . . For, money being the representative of labour, and the only medium by which debt can be paid, the creditor is in fact the master of the debtor, for the quantum of service or labour necessary to discharge the debt. If so, the United States are, by the bank contrivances, placed precisely in the situation of a slave who has purchased of his master

¹ Principles of Public Measures, 77.

about four days' freedom in each week ; because for more than one day in each week they owe service to the Bank of the United States, and for about two days to the several banks now operating. How improperly, then, do we speak ! Instead of saying, 'The Bank of the United States,' it would be more proper to say, 'The United States of the Bank.' " He says that a design exists for setting up a monarchy and aristocracy. The proof of it is in the Secretary of the Treasury's bank scheme. "The bank is perpetually betting one hundred to one hundred and six ; the wager is always drawn, and the bank receives the six in every hundred by way of forfeit." The gain of the bank implies a loss to somebody, because it is a traffic of ideas, not of substances. The bank has a monopoly of the circulating medium. Bank profits are a tax on the community.

The next of Hamilton's enterprises was the mint. He entered into an investigation of the value of the Spanish dollar. He found that changes had taken place in it within a century, and he thought that, on account of these, the real unit of account had been $24\frac{3}{4}$ grains of fine gold. He also discussed the relation of gold and silver, and seemed inclined to make some criticisms on the acts of Congress already passed in 1785 and 1786 for a gold and a silver dollar, which were the work of Jefferson. He was, "upon the whole, strongly inclined to the opinion that a preference ought to be given to neither of the metals for the money unit. Perhaps if either were to be preferred, it ought to be gold rather than silver." He declared that

the undervalued metal would be banished. "General utility will best be promoted by a due proportion of both metals," gold for large, silver for small transactions. He had no plan for securing this. He reached the conclusion that the unit in the United States ought to correspond with $24\frac{3}{4}$ grains of pure gold and $371\frac{1}{4}$ grains of pure silver. The latter he reached by taking the average of the last two Spanish dollar coinages. He proposed that each coin should be eleven twelfths fine, which would make the gross weight of the silver dollar four hundred and five grains. He opposed Jefferson's plan, which was to make the silver dollar contain three hundred and sixty-five grains pure, and to derive the gold dollar from it at the ratio of fifteen to one. His discussion of this entire subject has a superficial aspect of learning; but he had not mastered any point in the question, and the jealousy between himself and Jefferson cannot be overlooked.¹ If his paper was to pass as a production of his day and generation, it might be awarded high merit; but if it should be presented now as an authority worthy of any serious attention in respect to "bimetallism," its pretensions must be entirely rejected.

¹ Folio State Papers, Finance, i. 91.

CHAPTER XI.

THE REPORT ON MANUFACTURES; THE POLITICAL
ECONOMY OF IT; THE LOGIC OF THE POSITION OF
THE UNITED STATES AS TO TRADE.

THE next subject to which he turned his attention was "manufactures."¹ This enterprise again presented another phase of statesmanlike activity. The funding of the federal debt, with the sinking fund, and the mint, were legitimate tasks which presented themselves in the business of the new government. The assumption might have been neglected. The national bank was a voluntary enterprise; it was not imposed upon him. The report on the manufactures was a general disquisition on government policy, in a matter in which it was questionable whether the government properly had any policy. A large part of the document is occupied by an attempt to prove that he had any right to take up the matter, or that there was anything to be proposed. Of course, it included no project for meeting any exigency or dealing with any subject matter which was before him, but it undertook to lay down the grounds in justification of a line of policy to be pursued by the government. It could therefore never be put in practice until motives were

¹ Folio State Papers, Finance, i. 123.

called into play which must, in the nature of the case, be interested motives, actuating persons who would avail themselves of the vague and general principles which he had laid down to win selfish advantages.

The document is marked by his worst faults. It is prolix and loose in construction. It refers to some of the doctrines of private enterprise and non-interference, but in a way which makes it seem as if he must have taken them up at second hand and in the plump and crass form in which they were currently repeated. He thinks that the argument against the "zealous pursuit [which is a shifting of the issue] of manufactures" would have great force "if perfect freedom of industry and commerce were the prevailing system of nations." He did not see that all the obstructions put by foreign nations on American commerce were the most powerful form possible of the sort of encouragement to manufactures which he was anxious for. His further argument resolves itself into an effort to force manufactures *earlier* than they would come on account of habit, inertia, etc. He also alleges as an argument, that other nations have bounties, premiums, etc., which we must offset. The obstacles in the United States which have to be overcome are scarcity of hands, dearness of labour [which is the same thing], and want of capital. He did not admit the high-wages argument. "So far as the dearness of labour may be a consequence of the greatness of profit in any branch of business, it is no obstacle to success. The undertaker can afford to pay the price." He goes at large into the facts which make

manufacturing impossible in the United States without government interference, and introduces a long digression about public debt and capital, which at last he brings to a distinction between "an absolute increase of capital" and "an artificial increase of capital as an engine of business." Here he really comes so near to the distinction between increase of capital and greater effectiveness of a given amount of capital, that it seems as if he might have worked his way out. A funded debt is not, he says, the absolute increase, but the artificial increase. He construes all this argument, however, to prove the error of those who maintain that manufacturing cannot succeed in the United States.

He has a controversy here, not with those whom he started out to refute, who maintained the doctrine of free-trade and non-interference, but with those who dogmatically maintained that the United States ought to be an agricultural nation, and ought not to manufacture. For a critical analysis of the paper it is very essential to unravel the confusion which he makes all the way through between these two classes of antagonists. Against the latter he has a very easy case. He then brings forward three notions which have become traditional in the United States, but which were not in the old protectionism, and have not been treated with much attention anywhere else: First, that internal competition on protected articles lowers the price of them; second, that manufacturing has some quality or merit as a form of industry, to promote political and social well-being, which other

forms of industry have not ;¹ and thirdly, that transportation is an evil which ought to be minimized, as if it involved a pure waste. He then specifies eleven means of stimulating manufactures, among which he includes inspection laws, means of facilitating remittances, and means of facilitating transportation, — which show that his analysis is not correct, since they are irrelevant. Next he discusses different sorts of manufacturing industry with respect to what he thinks their chances in the United States might be, and makes a chance proposition as to the amount of duty which would suffice to start them here. He had no authority or guarantee for these propositions at all.

The system of protection to be found in this report of Hamilton's is the old system of mercantilism of the English school, turned around and adjusted to the situation of the United States. What Hamilton especially failed to see was the reaction of the system which he proposed. Hence he did not at all reach the philosophy of trade, nor even any philosophy of trade ; but all that he said on the subject dealt with the few groups of phenomena which he had happened to notice, without pursuing them up to any real relation with each other. He did not therefore become conscious of the confusion and contradiction of which he was guilty. In a review of Jefferson's first message,² Hamilton said : " There is hardly any

¹ This notion is the exact counterpart of the one mentioned above, that the United States must be agricultural and ought not to manufacture.

² Works, vii. 225.

stronger symptom of a pygmy mind than a propensity to allow greater weight to secondary than to primary considerations." His report on the manufactures deals entirely with considerations of the third or fourth order of removal from the controlling facts and generalizations. This has contributed very much to its popularity and success since the protective system was introduced here. All men live in assumptions, traditions, current opinions, etc., which are in the third or fourth derivative from the truth. No man ever penetrates behind these to get at the truth in more than one domain; namely, that which he makes his specialty. He is always vexed to hear the uninitiated talk about his specialty, because they treat it always from the standpoint of the third and fourth derivatives; but he does the same with their specialties when he comes to talk about them. Hence a man who goes remorselessly to the bottom of things will never have wide influence. He leaves the rest behind him, and appears to be an extremist.

On the contrary, one who deals as Hamilton did with the phenomena of the third or fourth order moves in exactly that range of confused and unanalyzed general propositions which seem to be practical, at the same time that they have an attractive philosophical aspect.

For the time being this report and the propositions in it had no actuality. There were demands for protection, and some concessions to them were made; but interest was absorbed in other directions, and this proposition fell out of notice. It was brought to

light again after the second war, when all the circumstances concurred to favour this policy, and it proved a welcome arsenal to the politicians of that period. All its notions were exploded over and over again by Webster, Raguet, Macduffie, and the leading Southerners of the nullification period, who developed exactly what Hamilton had overlooked, — the crippling effect of the cost and reaction of protection.

In regard to the doctrines about trade which Hamilton had in his mind, we may note the following evidence. In 1782 he wrote: "It became a cant phrase among the opposers of these attempts [to regulate prices during the Revolution] that trade must regulate itself."¹ "To preserve the balance of trade in favour of a nation ought to be a leading aim of its policy. The avarice of individuals may frequently find its account in pursuing channels of traffic prejudicial to that balance, to which the government may be able to oppose effectual impediment."² In the same article he made the historical statement that trade took its rise in England under the auspices of Elizabeth, and that its rapid rise was due to her fostering care. He refers to Hume's "Balance of Trade," and affirms that Hume did not hold government interference to be useless or hurtful. "The nature of a government, its spirit, maxims, and laws with respect to trade, are among those constant moral causes which influence its general results, and when it has by accident taken a wrong direction, assist in bringing it back to its natural course. This is everywhere admitted by all

¹ Works, i. 255.

² Ibid., 255.

writers upon the subject, nor is there one who has asserted the contrary doctrine.”¹

The last statement shows that he was very little acquainted with the literature, but the proposition which precedes it deserves particular attention. It is one which may be reached by several different lines of economic, political, or ethical reflection, and it has consequently been reached by a number of very sincere investigators at one time and another, who have congratulated themselves on reaching a theorem which solved all the riddles in this domain. It is, however, nothing but a pitfall, the peculiar calamity of which is that the exit from it is only with great difficulty ever to be found by anybody who has fallen into it.

It was impossible that a masterful man like Hamilton should consent to that theory of statesmanship which would have taught him to confine his efforts to an intelligent promotion of growth, with the removal of obstacles and gentle impulses at critical moments, in the direction which his genius indicated as the paths of prosperity. We shall see that herein lies the secret of the catastrophe which he brought upon his own political theory and his own political enterprises. He naturally could not consent to a policy which would have dictated to him to withhold his rash hands, when his whole being was in a quiver to seize that which he thought was going wrong, and impress upon it at once, and with unshrinking reliance on his own judgment, the form and tendency which he thought for the best.

¹ Works, i. 256.

The statesman of later times who most nearly sympathized with Hamilton's view of the duty of a public man in an executive office to have a "policy," and to try to carry it through the Legislature, was John Quincy Adams. His Secretary of the Treasury, with his approval, tried to introduce discussions of "principles" into his reports.¹ This second and later attempt gave the final proof that that practice is in disaccord with American ideas, and only reacts disastrously on the public man who uses it.

In the answer to the Rhode Island objections to the impost, in 1782, Hamilton wrote: "The principal thing to be consulted for the advancement of commerce is to promote exports. All impediments to these, either by way of prohibiting or by increasing the prices of native commodities, decreasing by that means their sale and consumption at foreign markets, are injurious. Duties on exports have this operation." Hence he argues that all the home taxes are far more injurious to commerce than any impost duties. In 1784 Mentor, in his reply to Phocion (Hamilton), laid down the doctrine that the balance of trade cannot remain adverse; that over some short period there must be an equality. In his answer Hamilton noticed this doctrine only by the following: "As to Mentor's commercial reveries, I shall decline bestowing many remarks on them; not only because they are not immediately connected with the general subject, but because there is little danger of their making any proselytes, while men

¹ J. Q. Adams, vii. 347.

are convinced that the prosperity of the national commerce depends as much upon the extent of its capital as that of any individual.”¹ It is impossible to believe that the man who wrote this had carefully studied Adam Smith within the previous year.

In 1791 he wrote to Jefferson: ² “My commercial system turns very much on giving a free course to trade and cultivating good humour with all the world.” In the report on manufactures he says: “The West India Islands, the soils of which are the most fertile, and the nation which in the greatest degree supplies the rest of the world with the precious metals, *exchange to a loss* with almost every other country.”

These statements show that he was completely befogged in the mists of mercantilism, for they are the doctrines of the first quarter of the eighteenth century.

It should be noticed, however, that Hamilton gave the following evidence that he was not disposed to press his notions on this subject to any application. His tax system included import duties and excises, and therefore was hostile to any extravagant rates in the former with a neglect of the latter. In 1794 he prepared a project for a treaty of reciprocity with England, to be used by Jay, according to which he would have agreed to stipulations limiting the American taxes on all the leading manufactured articles to ten per cent.³ In his review of Jefferson’s message, in 1801, he blamed the repeal of the internal revenue

¹ Works, iii. 501.

² Ibid., iv. 54.

³ Ibid., 313.

taxes, saying that the import duties were high, and that it was doubtful whether they were not too high; also that if any revenue could be remitted, it ought to be some tax which weighed on navigation or commerce. Still he objected, in the same paper, to Jefferson's notions of free commerce, — that although industry ought to be free in the main, "practical politicians know that it may be beneficially stimulated by prudent aids and encouragement on the part of the government."¹

The great pity about Hamilton's position in this matter was that it helped to turn the current of American opinion against what, according to all the logic of the American situation, it ought to have been. It is true that the Americans, as we have seen above, did not make their revolt as a revolt against the navigation system, but rather in accordance with it. Nevertheless, the logic of their position led them to be the champions of free trade with all the world. They were, therefore, constantly at loggerheads with themselves, at one moment grasping the logic of the situation correctly, and at the next succumbing to the dogmas of English mercantilism, which were of course the only theories on commerce which they ever had heard. Franklin, in an essay on wages, written about the end of the Revolution, showed that his ideas had been much cleared up, although he had twenty years before begun to escape from mercantilism. "We must not conclude that manufactures cannot prosper unless the wages of the

¹ Works, viii. 209, 216, 217.

workman are reduced as low as we find them in Europe." Wages will rise in Europe: first, because of the "greater quantity of labour that Europe will have to perform in consequence of the existence of another great nation in the commercial world, and of its continual increase;" and secondly, because of "the emigration of European workmen, or the mere possibility of their emigrating in order to go to America, where they will be better paid." "In order to raise the rate of wages, it is enough that higher can be obtained in any place to which the workman who depends upon them can remove."¹ Also in a pamphlet of information for immigrants he said that the American States had not encouraged manufactures by taxes, etc., because "if the country is ripe for the manufacture, it may be carried on by private persons to advantage, and if not, it is folly to think of forcing nature." There are few poor in America to furnish labour. They "will not be found in America till the lands are all taken up and cultivated, and the excess of people who cannot get land want employment."²

In 1780 the Spanish Court asked John Jay if the United States had power to protect national industries. He answered: "With respect to the protection of national industry, I take it for granted that it [industry] will always flourish where it is lucrative, and not discouraged, which was the case in North America when I left it, every man being then at liberty by the law to cultivate the earth as he pleased, to raise what he pleased, to manufacture as he

¹ Franklin's Works, ii. 435.

² Ibid., 475.

pleased, and to sell the produce of his labour to whom he pleased, and for the best prices, without any duties on importation whatever." "So great is the extent of country in North America yet to be cultivated and so inviting to settlers, that labour will very long remain too dear to admit of considerable manufactures." ¹

These doctrines and others to the same effect lay in the logic of the American situation. With them should be compared the enthusiastic anticipations of Pownall, mentioned above.² The protective system which Hamilton advocated, consisted in borrowing the traditions of the colonial system; and as a fact, although the Americans had won their political independence, they perpetuated their intellectual dependence by bringing over the dogmas of the colonial mercantile system and regulating their affairs thereby.

¹ Dip. Corr. Rev., vii. 245.

² See page 34.

CHAPTER XII.

HAMILTON'S CONTESTS WITH JEFFERSON AND MADISON ;
PARTY VIRULENCE ; HAMILTON'S POLICY AND METHODS.

WE have now examined the great measures which Hamilton proposed by way of organizing the new government and starting it upon its career as nearly as possible according to his ideas of what it ought to be. Of course he put his personality at stake on every one of his measures, in this method of doing business, by the recommendation and upon the project of an executive officer, to which the legislature was asked to consent. He provoked antagonism of every kind, sectional, personal, and factional. When the Federal Government was organized, it was like a prize, to be scrambled for. If a Union was formed, there would be *power* in it ; and the question would be, Who shall have it? If a Union was formed, it would be capable of abuses on behalf of personal, sectional, and other interests. There would therefore be beneficiaries on one side, and victims on the other. The Virginians seem to have expected that Virginians would of course stand first in the councils of a Virginia president. But Hamilton possessed the confidence of Washington, and constantly won more of it. He was aggressive and arrogant ; and it may well be

believed that his manner to a man like Jefferson must have been very offensive to the latter, all the more because, whenever they came in collision, Hamilton won a victory. He either proved himself in the right, or maintained his case so well that he could not be proved in the wrong. The sentiments of the two men were also as wide apart as the poles. Jefferson and Madison were already friends, and were drawn together against Hamilton. Madison sided completely with Jefferson, and led, in Congress, the attacks upon Hamilton. In every case he was signally defeated, which seems to have embittered him more and more. In 1793, when the resolutions to investigate the treasury, which Giles had introduced at their instigation, were pending, Madison wrote that there appeared to be "blamable irregularity and secrecy."¹ This was giving a criminal colour to appearances for which Hamilton was, in fact, to blame. He had not properly and clearly published the facts. His operations often lacked simplicity and clearness. In 1794 Madison complained of Hamilton's "mentorship to the commander-in-chief."² Madison construed the report on manufactures to mean that "Congress can do whatever in their discretion can be done by money and will promote the general welfare." Jefferson construed it to the same effect.⁴ Monroe also, who was a younger man, was attached to these two, and completely affiliated with them. Jefferson seems to have furnished most of the animus,

¹ Madison's Letters, i. 575.

² Ibid., ii. 19.

³ Ibid., i. 546.

⁴ Washington, x. 519.

Madison carried on the congressional fight, and Monroe made himself the agent in a shameful affair, in which, it is true, the great shame fell to Hamilton, but in which Monroe did not act with dignity or propriety. Behind these were a second order of party leaders in the same warfare, like Giles of Virginia; and behind these still again some of the editors of the period, who carried scurrility and vituperation to a degree of which we nowadays know nothing. Although Hamilton resigned, in January, 1795, this personal warfare upon him was kept up, not without reason, as we shall see, and lasted until his death.

In 1792 he wrote a letter to Carrington of Virginia,¹ complaining that Madison had turned against him, although he supposed that they sympathized on all important matters, including assumption. He now finds Jefferson and Madison leading a party against him, and acting on views subversive of the Union. Jefferson questions the expediency of funding at all. He reported in the cabinet against the bank with asperity, and ill humour toward Hamilton. He opposes Hamilton in the sinking fund commission. He has employed Freneau to edit a newspaper against Hamilton. Hamilton thinks that Madison is intriguing against him, and opposing funding, calling it a mortgage on posterity. Jefferson and Madison "have a womanish attachment to France, and a womanish resentment against Great Britain." The former "came here probably with a too partial idea of his own powers, and with the expectation of a greater

¹ Works, viii. 248.

share in the direction of our councils than he has in reality enjoyed." "A variety of circumstances which took place left Mr. Madison a very discontented and chagrined man, and begot some degree of ill humour in Mr. Jefferson." They wanted commercial war with Great Britain, which Hamilton opposed, and so he incurred their displeasure. On other matters, except the additional assumption, "my views have been equally prevalent [predominant] in opposition to theirs. This current of success on the one side and of defeat on the other has rendered the opposition furious, and has produced a disposition to subvert their competitors even at the expense of the government." Jefferson is eager to be president; Hamilton is not expected to support him, and must be broken down. The spectres of monarchism walk in Virginia. Hamilton thinks that the danger is from State rights. "I am affectionately attached to the republican theory. I desire above all things to see the equality of political rights, exclusive of all hereditary distinction, firmly established by a practical demonstration of its being consistent with the order and happiness of society." He fears that the United States cannot sustain itself against the States. "Hence a disposition on my part toward a liberal construction of the powers of the National Government, to erect every fence, to guard it from depredations, which is in my opinion consistent with constitutional propriety." He confesses doubts of the success of republicanism; its enemies are faction and anarchy. If he wanted to overthrow the State governments, he

would seek popularity, and talk about "danger to liberty." Jefferson is "a man of profound ambition and violent passions."

In that year Hamilton was provoked, by the attacks of Freneau, which he regarded as instigated by Jefferson, into writing newspaper articles with his own hand in reply. This scandal gave great pain to Washington, who remonstrated with both Hamilton and Jefferson. Hamilton replied that he was on the defensive, and only aimed to defend public measures against which opposition was forming. He agreed to peace, if Washington should bring it about.¹ Jefferson, in his reply, made a résumé of his charges against Hamilton. The letter is long; but the chief points are that he complained, not without reason, that Hamilton meddled with his department, but he went on to make calumnious assertions that Hamilton was forming a corrupt squadron in the legislature, by interesting members in financial schemes, and that he did not want to pay the debt, but to use it to corrupt the legislature.² In August, Hamilton wrote a long reply, for Washington, to all the charges brought against the administration. He says: "To uphold public credit and to be friendly to the bank must be presupposed to be corrupt things, before the being a proprietor in the funds or of bank stock can be supposed to have a corrupting influence." A stock-owner is not a stock-jobber.³

¹ Works, vi. 384.

² Washington, x. 517. Cf. Jefferson, ix. 96, 122, 126.

³ Works, ii. 265.

Jefferson charged Hamilton with being the author of a pamphlet "Plain Truth," in reply to Paine's "Common Sense."¹ He said that he heard Hamilton say that he preferred monarchy, and thought the English Government the most perfect ever devised by the wit of man. John Adams, who was present, interposed, "but for its corruptions." Hamilton said that with these it was perfect, and without them impracticable.²

That Hamilton imposed respect upon Jefferson was proved by other passages in his writings, which we may insert here, although they are later in date. In 1795 he wrote to Madison: "Hamilton is really a Colossus to the anti-republican party. Without numbers, he is an host within himself." In 1798 he wrote to Madison, referring to two papers in *Fenno's "Gazette,"* signed "Marcellus": "They promise much mischief, and are ascribed, without any difference of opinion, to Hamilton. You must, my dear sir, take up your pen against this champion. You know the ingenuity of his talents, and there is not a person but yourself who can foil him. For Heaven's sake, then, take up your pen, and do not desert the public cause altogether."⁴

It is not easy to estimate the extent to which the rivalry and animosity of Hamilton and Jefferson have affected the political institutions of the United States. After Jefferson became president, his action in more than one matter betrayed the motive of counteracting

¹ Jefferson, ix. 126.

³ *Ibid.*, 121.

² *Ibid.*, vii. 389.

⁴ *Ibid.*, iv. 231.

what had been Hamilton's pet measures. The unfair abuse of Hamilton by the other party, from Jefferson down to Callender, is fitted to drive one too far in Hamilton's defence. It is a bias against which it is necessary to be on one's guard.

We must here notice, therefore, that Hamilton's methods were calculated to raise against himself very bitter opposition. He forced every issue in its most direct form. His fearlessness, openness, and directness turned rivals into enemies, irritated smaller men, and aroused their malicious desire to pull him down. At the same time, by the mass he was not understood, and in them he inspired a vague sense of alienation and distrust.

CHAPTER XIII.

THE EXCISE ; THE WHISKEY REBELLION.

THAT one of Hamilton's measures on account of which he came into the first and most distinctly hostile collision with the opposing forces which have been described, was the excise. In this collision the logic of the situation was distinctly developed.

Pennsylvania had an excise on imported spirits in 1756, as a "fund" for the support of paper money. It was revised in 1772, and extended to domestic spirits, but appears never to have been collected. During the war, the importation of rum being prevented, the distillation of whiskey became very profitable. At that period there were in western Pennsylvania judges who held commissions from both Virginia and Pennsylvania ; and people submitted to either, as they chose. "It is reasonable to believe that by many neither was well submitted to."¹ About 1786 New Jersey tried to lay an excise on spirits, but could not bring it into operation.²

In the second report on the public credit, in 1790, Hamilton proposed an excise on whiskey, in order to pay the interest on the State debts which had been

¹ Findley, 21, 26.

² Ibid., 31. "The genius of the people will ill brook the inquisitive and peremptory spirit of excise laws." (Hamilton in the "Federalist," Works, ix. 69.)

assumed. He said that Massachusetts, Connecticut, and Pennsylvania had excises on spirits.

Whiskey had not yet come into fashion. The spirit which was drunk upon the coast was rum. Whiskey was a domestic substitute among the Western people, and was very largely manufactured by them in households. They had no money, and used whiskey in barter.¹ That is to say, they could not produce grain so as to export it to any market where they could buy sugar, tea, salt, spices, etc., on account of difficulties of transportation; but if whiskey was distilled from the grain, it could be transported. The tax on whiskey was a specific tax; and as the commodity was cheap among them, the *ad valorem* rate was high, and they could not pay the tax with the whiskey. In 1792 Hamilton reported more or less opposition to the excise in New York, New Jersey, Pennsylvania, Delaware, South Carolina, North Carolina, and Kentucky.² In that year a convention at Pittsburg adopted the following resolution: "Whereas, some men may be found among us so far lost to every sense of virtue and feeling for the distresses of this country as to accept offices for the collection of the duty, Resolved, That in future we will consider such persons as unworthy of our friendship, have no intercourse or dealings with them," etc.,—a complete boycott.³ This resolution might have been copied from an old Stamp Act resolution. Findley, however, says that they never acted upon it.⁴

¹ Findley, 41.

³ Washington, x. 247, note.

² Works, ii. 248.

⁴ Findley, 44.

In August, 1794, Hamilton made a report on "Opposition to Internal Duties,"¹ in which he gave a history of the rebellion which had been going on for two years. Inspectors of stills were tarred and feathered, whiskey-poles were set up, meetings were held, disguised parties perpetrated violence. Findley admits that the facts alleged in this document were true with a single exception. A meeting at Pittsburg, in 1792, which adopted the boycott resolution, had put in the preamble that a tax on spirituous liquors is unjust in itself and oppressive to the poor, and that internal taxes on consumption destroy liberty. They resolved to oppose the law by all legal measures. Hamilton drafted a letter to the Governor of Pennsylvania, to be signed by the Secretary of State, objecting to the Governor's proposition for dealing with the Whiskey Rebellion.² That proposition "seems to have contemplated Pennsylvania in a light too separate and unconnected. The propriety of that course in most, if not in all, respects would be susceptible of little question if there were no Federal Government, federal laws, federal judiciary, or federal officers," and if such and such acts had not been committed, reciting the features of the resistance for three years past.

The point he makes against the Governor is that the latter admits that affairs had reached a pass at which, if the authority of Pennsylvania was at stake, coercive measures would be proper, but that coercive measures are not yet proper for the Federal Govern-

¹ Works, v. 489.

² Ibid., vi. 4.

ment at the same stage ; which Hamilton disputes. At the same time (August, 1794) he began to write newspaper articles to instruct public opinion on the rebellion. He stated the question to be : " Shall the majority govern or be governed? Shall the nation rule or be ruled? Shall the general will prevail, or the will of a faction? Shall there be government or no government?"¹ In September the President issued a proclamation, which was written by Hamilton, one of the most important points of which was the assertion that principles of anarchy had been disseminated.² Twelve or fifteen thousand militia had already been called for from Pennsylvania, New Jersey, Maryland, and Virginia.³

At this time Hamilton was carrying on the War Department as well as the Treasury. He proposed to Washington that he should join the expedition, on the ground that the adviser of a measure which involved danger to his fellow-citizens should partake in that danger.⁴ In 1799 he wrote that during that expedition he trembled at every moment, lest a great part of the militia should take it into their heads to return home, rather than to go forward.⁵ In this expedition he found himself face to face with the things which he had so long detested, — lawlessness, anarchy, hostility to taxation, and undiscipline in the army.

In the whiskey rebellion we meet with a queer echo

¹ Works, vi. 18.

² *Ibid.*, 50.

³ *Ibid.*, 15.

⁴ *Ibid.*, 49.

⁵ *Ibid.*, viii. 526.

of the lawlessness of the period of the outbreak of the Revolution. In fact, Findley expressly refers to it. The people "considered the conduct of Congress in seizing the British posts, arms, etc., while they remained colonies, petitioning the throne, acknowledging their dependence on it, and endeavouring to have their just cause of complaint removed, to be a precedent perfectly applicable to their case."¹ They robbed the mail in order to intercept letters from Pittsburg, which they supposed would carry news of their proceedings, just like the proceedings of the committee at Philadelphia in 1775. Their methods of coercion, boycotting, whipping, tar and feathering, were the same as those employed against the tories twenty years before. They thought that the excise law was immoral. "This theory became with many a religious principle."²

The demand which was made on the government was to conciliate the people by yielding to their demands, and not to annoy or irritate them by an exercise of authority. Findley's plea is all the time that outsiders did not understand the proceedings; those proceedings did not mean what they appeared to mean. There was always an incidental or constructive relation of things which explained the appearances, and the officers were to blame for all the trouble, because they did not understand the appearances. The collectors and the inspectors always came at the wrong time, or behaved unwisely. It is the chief doctrine of anarchism that the law is to blame

¹ Findley, 102.

² *Ibid.*, 300.

for breaches of the law, and that the police are the ones who cause breaches of the peace. Findley says: "It is an undoubted fact that the manner in which the execution of the law was conducted, while it invited opposition, gave alarming apprehensions to men of discernment, for they could not otherwise account for it than by supposing that the disorders were designedly fostered until they would produce a more serious issue. Many of them knew that he who stood at the helm of the revenue department had no aversion to being employed as a pilot in the storm."¹ He repeats this notion many times. He attributes the trouble to Hamilton's delay or "negligence" to enforce the law, which he insinuates was intentional, in order to produce a rebellion.

As a specimen of Findley's mode of discussing the matter, the following may suffice:² "That resentment which formerly discovered itself by casual excesses, in which comparatively few were engaged, and those few generally persons of violent passion and little discretion, now assumed the tone of unreflecting madness, and drew into its vortex many persons of good morals, and who usually discovered a respectable measure of discretion in all their dealings as men and citizens." Five hundred of them therefore met and organized a military attack on an inspector, and his guard of United States troops. "Many attended solely because they had not firmness sufficient to refuse." They only demanded to send a committee to the house to take away the inspector's papers,

¹ Findley, 75.

² Ibid., 85.

not to plunder it. Hence this was a riot, not treason. The defence of the house was "rash." "True bravery is always connected with prudence." The United States marshal was also imprudent to be seen in company with the inspector. A volunteer committee called out the militia. A meeting was held which banished two persons. It was not understood why judges, attorneys, and a United States Senator joined in these meetings, but it gave an appearance of unanimity. A committee of safety was formed, and a resolution was proposed to "call forth the resources of the Western country to repel any hostile attempts that may be made against the citizens." He says that it required great fortitude for Gallatin to oppose this resolution. There was a real terrorism there, and the Mingo Creek Association (as we see from his statements) was imitating Jacobin methods of intimidation. "No man thought himself safe in many places in telling his real sentiments." The resolution was suppressed by referring it to a grand committee.

Findley says that it is mysterious in what capacity the Secretary of the Treasury went out. He was with the right wing, and "was extremely attentive to the wants of the army." He occupied "a superb marquee," much finer than that of the commander of the expedition. "To him has been ascribed by some in the army the measure of discipline that was preserved in it [that is, in the right wing, for the left wing was marked by a lack of discipline] ;¹ and the regularity of the supplies they received, though this was un-

¹ Findley, 143.

doubtedly ascribing too much to him, as a number of valuable officers occupied the various stations in the army." He says that Hamilton summoned persons before him, and browbeat them, in order to extort confessions or evidence ; that he did this to Findley himself, and expressed resentment against him for having written lies about himself [Hamilton].²

A very essential fact to be noted in judging of this matter is that the whiskey rebellion had extended far east of the mountains, and there was an uprising in Maryland ;³ indeed, according to another account, down to the suburbs of Philadelphia ; and "had not the government anticipated it, a general explosion would speedily have ensued."⁴ Hamilton says that Governor Mifflin told him this. Findley also states that it was not believed in western Pennsylvania that the militia would really march ;⁵ and he does not maintain that it was improper for the President to march the army into western Pennsylvania.

We may therefore conclude that if the rebellion had not been suppressed, the excise would no longer have been collected throughout the United States. Whether in the retrospect it can be regarded as a wise step to have adopted the excise, and forced the issue, is very doubtful ; but after the excise had been adopted by law, that this demonstration that the Federal Government had force at its disposal which it could and would use, was a healthful thing, seems

¹ Findley, chap. xviii.

² *Ibid.*, 241.

³ *Ibid.*, 312.

⁴ *Works*, vi. 433.

⁵ Findley, 184.

very clear. Such is the judgment of a foreigner, who may be regarded as a bystander, who thought that the authority of the government needed vindication, and that the charges against Hamilton of working up the whiskey rebellion in order to use force were empty.¹ In a letter to Washington, in November, Hamilton notices Bache's criticism of him for going out. He says that his presence had not been useless, and that he has learned "to hold popular opinion of no value."² It may have no value, but a statesman must notice that it has power.

On the trial of the prisoners taken in connection with the whiskey rebellion the court held that it was high treason to go with arms to the house of an administrative officer of the law, with the intention of injuring his property, or otherwise intimidating him from the performance of his duty.³ According to that ruling, all who participated in the Stamp Act riots were guilty of high treason.

¹ Liancourt, viii. 82.

² Works, vi. 65.

³ Dallas, ii. 346.

CHAPTER XIV.

THE STANDING OF THE UNITED STATES IN THE FAMILY OF NATIONS ; COMMERCE ; RESENTMENT TOWARD ENGLAND ; OBLIGATIONS TOWARD FRANCE ; DIFFICULTIES OF NEUTRALITY ; GROUPING OF PARTIES ON FOREIGN RELATIONS ; JAY'S MISSION ; HAMILTON A MINISTER WITHOUT PORTFOLIO.

WHEN the War of the Revolution ended, all the anticipations in regard to commerce with which it had been begun proved to be mistaken.¹ England, instead of losing the trade of America, found that it came back to her. Trade is governed in its course by the cheapness and quality of the goods, the facilities of credit, and the tastes of the people. As these were all best satisfied in England, the Americans began to buy there. The French merchants who had supposed that they were going to get the trade of the American colonies suffered such losses in connection with it that they abandoned it ; and when measures were adopted

¹ The first part of this chapter, which aims to connect the earlier struggles about commerce between England and France with respect to the American colonies with the struggles of the same powers as belligerents over the commerce of America as a neutral, is necessarily extremely brief. The confusion of notions about commerce in the three countries between 1783 and 1793 demands full and separate treatment.

for opening free trade between the United States and France, the annoyance which was caused to a trade which had taken a shape conformable to the previous French restrictions produced a clamour among the merchants, who would not have the very good which they had hoped for. As time went on, also, the Americans were not sure whether they wanted treaties of commerce ;¹ and when the peace was made, there was no one in Europe with a commission to negotiate a treaty of commerce with England.² Moreover, the attention of Europe was now drawn away from America. France and England were very eager to free their hands, so that they might notice what Russia and Austria had been doing in the East.

At this time, also, America did not stand well before Europe.³ France felt that she had been duped in the

¹ Congress "are still anxious not to engage extensively in commercial treaties till experience has shown the advantages or disadvantages that may result from them." (Livingston to Dana, 1783 ; *Dip. Corr. Rev.*, iv. 455.) In the Senate in May, 1789, all treaties of commerce were condemned. (Maclay, 61.)

² Soon after the peace in 1782 Hamilton proposed in Congress to renew the commission to make a treaty of commerce with England. It was referred to a committee, of which Madison was a member, and never reported. (*Works*, viii. 366.)

³ Vergennes to Montmorin, 1778 : "I am beginning to have a less idea of their [American] firmness, because the idea which I had of their talents, their views, and their patriotism is weakened in proportion as I get more knowledge." (Circourt, iii. 314.) Franklin to the President of Congress, Sept. 13, 1783 : Reports of disunion, contempt of authority, refusal to pay taxes, etc., have greatly injured the reputation of the United States. (*Dip. Corr. U. S.*, ii. 9.) Reed to Greene, London, Feb. 12, 1784 : All the ruling classes in England are mortified at the war, and

affair, and the matter of the debt lowered the standing of America in Europe. The disposition in England was not malicious or actively unfriendly. It is not true that the legislation and executive orders were arranged to do harm to America.¹ The disposition of the English seems rather to have been to ignore America and treat her with indifference. But they arranged their navigation system so as to hold it intact, for they had not lost faith in it, and they claimed the right, as a mere matter of course, to adapt it to the United States as a foreign nation.² The point where this injured the

speakers of America, reporting all unfavourable gossip; we stand very low in France and not very high in Holland. French merchants dealing with America have been ruined. "It is a prevailing opinion throughout Europe that our governments and public affairs are in very great confusion" Feb. 21, he writes to John Adams that he is disappointed at not finding a conciliatory spirit. (Reed's Reed, ii. 403.)

¹ In 1794 Hamilton made an examination of the trade regulations of England and France as they stood in 1790, and showed that those of England were, on the whole, far more favourable to the United States. He furnished a brief for a speech by Smith of South Carolina, on Madison's resolutions for discriminating duties in favour of those powers with which we had treaties. (Works, iii. 423; Annals of Congress, 1793-95, 174.) The purpose of the paper was entirely political, a part of the warfare of Hamilton and Jefferson. It showed how silly it was to be governed by the fact whether there was a treaty or not, instead of looking to the facts of commercial relations; also how easily, when men are influenced by passion, facts are assumed without investigation.

² This was the point of Lord Sheffield's "Observations on Commerce." Wraxhall (Posthumous Memoirs, 249) quotes Jenkinson, that if England could maintain the navigation system she might be said "to have gained an empire" in spite of the

United States was in regard to the carrying trade between the United States and the British West Indies, which according to the colonial and navigation systems the English insisted on doing in their own ships. In this connection John Adams, after he received his commission and went to England to negotiate a commercial treaty, advocated the most advanced and enlightened doctrines with regard to commerce. If he could have persuaded the English to adopt them, and if upon plain grounds of common-sense they had said what he asked them to say, that there must be every gain in carrying on the relations of commerce between the United States and the British Empire with freedom in 1785 which there was in 1765, the history of the world since might have been different. As he could not do this, he turned around and tried to persuade

loss of America. Bingham wrote a reply to Sheffield, saying that the Americans would retaliate by a navigation law. A large part of the bad feeling which grew up may be reduced to this: the English were delighted to find that they had lost little or nothing, that the malicious hopes of their enemies were to be disappointed, and that the Americans would lose by being outside the British Empire. Without taking hostile measures they were willing that all the disadvantages of severance from the empire, under the reign of the Navigation Act, should be realized. The Americans were vexed that, on this view of the matter, they and their trade were not such an object to be sued for as they had expected. In the English report on American trade of 1791 the position taken is that a Navigation Act is a proper measure for any independent nation to adopt, and that it would be no grievance of England if the United States should adopt one. Here is one of the weaknesses of retaliation. A retaliatory act is not recognized as such, and exerts no coercion.

the Americans to adopt navigation laws, himself forgetting that if the navigation system of the English had been injurious to the colonies when imposed upon them in 1765, it must be equally so if they imposed it upon themselves in 1785. The thing which apparently irritated him the most was being treated with indifference ;¹ for during the last ten or fifteen years the whole political policy of the civilized world had turned upon the value and importance of the American settlements. He therefore urged the Americans, in letter after letter, to adopt a navigation system, as a means of forcing the Europeans to pay attention to them ; and as this policy of irritation and commercial war fell in with the popular temper, he was only too successful. Here at last was a case where the demand for an " energetic government " met with a response.²

Adams and the other American agents in Europe entirely failed to make a correct diagnosis of the political situation there, and their prognostications with regard to France and England were entirely

¹ Jan. 26, 1787, he wrote to Jay about the King's speech and the debates : " The most remarkable thing in them is that the King and every member of each House has entirely forgotten that there is any such place upon earth as the United States of America. We appear to be considered as of no consequence at all in the scale of the world " (Dip. Corr. U. S., iv. 481) ; and again, April 10, 1787 : " The members of Parliament have been so long irritated and tormented on that subject that they detest to hear the name of America mentioned, and the political system and national humour seems to be neither to speak nor think of it. A seemingly total inattention and silence prevail, and will prevail for some time." (Dip. Corr. U. S., v. 233.)

² Secret Journ. Cong., iii. 395.

erroneous. It was believed that England was on the verge of bankruptcy or revolution, and that the next century would see her fall to an exceedingly inferior position.

On the whole, therefore, the favourable opportunity which probably existed at the peace for establishing good relations with England was lost. There were charges on each side that the treaty of peace was not kept by the other party. These recriminations were extremely strong in America. Jay made a very careful report upon the points in which the United States was remiss,¹ which led to a circular letter issued by Congress in the next year, calling upon the States to provide for the faithful performance of the treaty ;² and they adopted a letter prepared by Jay, dated April 23, 1787, being instructions to the minister in England, candidly admitting that the fourth and sixth articles of the treaty had been violated in America, and the seventh by England, and proposing mutual fulfilment.³ In a letter to Adams, Nov. 1, 1786, Jay wrote : "The result of my inquiries into the conduct of the States relative to the treaty is, that there has not been a single day since it took effect on which it has not been violated in America by one or the other of the States."⁴ England did not open diplomatic relations with the United States, and refused to give up the western posts, or pay for the negroes taken away. When the wars of the French Revolution commenced,

¹ Secret Journ. Cong., iv. 244 (1786).

² Journ. Cong., xii. 32.

³ Dip. Corr. U. S., v. 114.

⁴ Ibid., vi. 21.

the relations between the United States and Great Britain were therefore strained.

As to France, when the war was over, opinions in the United States were so divided as to the behaviour of France and the duty of the United States, that two parties were formed. The division really began among the commissioners at Paris. Adams and Jay believed that France had acted from entirely selfish motives, that the United States owed her no gratitude, and that she had really tried to hold the United States down, barely giving enough support to make her independent of England, but not enough to allow her to become a great power; also that France would connive with England to restrain the growth of America.¹ In 1783 Adams wrote: "In the last '*Courier de l'Europe*' it is said that all the commercial powers are concerting measures to clip the wings of the eagle, and to prevent us from having a navy. I believe it."² Franklin, on the other hand, believed that France had acted throughout with generosity and good faith. He thought that the acts which bear a contrary colour were easily explained by the fear that the Americans, relying on French aid, might continue the war by exaggerated demands. He cautioned Congress against the insinuations of Adams, which he attributed to a jealous and suspicious disposition.³ The issue between these two parties has never been solved to this day. It had

¹ Adams, ix. 515: Nov. 17, 1782.

² Dip. Corr. Rev., vii. 148.

³ Ibid., iv. 138.

immense political importance for the United States in the next twenty years.

The course of events in France speedily wrought out the penalty of the relationship which the United States had formed with that country by accepting its aid. The relation of a money debtor developed all its evils. As soon as the Revolution commenced, the United States found itself indebted to one France, although it had contracted the obligation to another; and it came about in the end that the Revolutionary Government were disposed to give the broadest and most extravagant construction to the obligations of the United States, on account of the relationship which had been formed. There were some wise men who had foreseen this and had objected to the relationship. For instance, H. Laurens opposed the plan of drawing on France to pay the interest of the debt. He called it "giving a mortgage on the national honour to foreign powers." The result proved that he was correct.¹ Also as early as 1781, Jay wrote to Thomson: "I flatter myself that Congress will never again attempt to form an alliance on principles of equality *in forma pauperis*." ²

Thus the position of the United States between the two great powers of Europe, which were approaching a new contest with each other, was delicate and dangerous, while its relations to each of them involved difficult questions. The course of domestic affairs in the United States had seemed to prove that the worst prophecies of the English in regard to the fate of the

¹ Doniol, iii. 403.

² Thomson Papers, 40.

United States under independence were to come true. The anarchistic elements, as we have seen, were gaining strength, and the effect of the French Revolution, as soon as it fairly opened, was to give them new vigour. The French proceedings seemed to a great many to prove that the United States had stopped short in the pursuit of true liberty; that the federal Constitution was what the French called a counter revolution, and that the United States, having given the French the first lesson in liberty, might very properly take a lesson from their pupil in return. On the other hand, to others, of whom Hamilton was one, the French Revolution from its very beginning seemed to threaten to fall into anarchy, and to miss altogether the idea of true constitutional liberty.

The Americans had somewhat hastily concluded that when they got their independence they would be relieved from the danger of being drawn into European disputes. As soon as the war in Europe began, they found that their perils as a neutral and weak nation were perhaps greater than they would have been if in dependence on, and under the protection of, one of the belligerents. It was therefore an undoubted misfortune for the United States that at the beginning of their career the political questions which absorbed their interest were those of foreign policy, that domestic parties were formed upon questions of sympathy with one or the other of the belligerents in Europe, and that domestic politics were ruled by the reflex action of these foreign questions.

In 1790 Gouverneur Morris was sent to England on an informal mission, to see if a treaty of commerce could be obtained, and if negotiations could be opened for the fulfilment of the treaty. His reports of his interviews with the Englishmen do not represent him as very diplomatic in his behaviour. He seems to have been stiff and offish.¹ Although the English at first received him cordially, his mission seems to have been frustrated by the fact that he had felt bound to inform the French Minister of it, whose intervention was offensive to the English.² He wound up with a threat that discriminating duties would be laid against England, and left the country in bad humour.³

In the same year, England and Spain having quarrelled, Lord Dorchester, Governor of Canada, asked leave to send troops through the territory of the United States to reach the Spanish territories. Adams advised that the request should be refused; Jefferson, that no answer should be given, so that if they went through without permission, the United States might be in a position to complain. Hamilton advised that consent should be given, although he was by no means clear and positive to that effect. He thought that a refusal would lead to bad relations with Great Britain; that she would conquer Florida and Louisiana, which would make it very desirable for the United States to be on her side.⁴

In the next two or three years the difficulty of the

¹ Morris's Morris, i. 327.

² Ibid., 310.

³ Ibid., 370.

⁴ Works, iv. 21.

relation with France rapidly developed. The United States was asked to pay the debt in various ways ; and in 1793, after England declared war, the two nations began a commercial war upon each other, having in mind all the time the advantage which each desired to get from the neutral, and which he desired to prevent his enemy from getting. The question was therefore forced upon the American Government what policy they should adopt toward the belligerents. In April, 1793, Washington submitted this question to his Cabinet, who were unanimously of the opinion that a proclamation of neutrality should be issued, warning citizens of the United States that if they rendered themselves liable to the law of nations by aiding either of the powers, they would not receive the protection of the United States, and that prosecutions would be instituted against all who should violate the law of nations, within the cognizance of the courts of the United States.¹

This proclamation was the signal for the outbreak of the party war. The opposition declared that it put us in the position of cold indifference between the parties to the war in Europe, when in truth we ought to be hostile to England and friendly to France. It was declared that the proclamation was without authority ; that the President had no right to make it, since Congress had the power to declare peace and war ; that it was contrary to the treaty with France, contrary to the gratitude we owed her, and untimely and unnecessary.² The arrival of Genêt

¹ Wait's State Papers, i. 44.

² Works, iv. 136.

to represent the French Republic offered an opportunity for demonstrations on the part of those who found, in sympathy with the French, a means of manifesting their hostility to the drift of things under the Federal Government. The swaggering and domineering demeanour of Genêt, and his attempt to use the United States for French interests, speedily produced a crisis in domestic political affairs.¹

The drift of things in the Federal Government was, not without reason, called Hamiltonism, and Hamilton immediately took up its defence. Already, in 1790, he had maintained that gratitude between nations can rarely have any solid foundation; gratitude being due for something done for the sake of the beneficiary, whereas Spain and France helped the United States for their own sakes.² In his Cabinet paper of April, 1793, he urged that the United States should cut loose from their obligation. He admitted that treaties hold good through all changes of the internal constitution or government, but drew the essential distinction in the following convincing manner: treaties ought not to involve other nations "absolutely and unconditionally in the consequences of the changes which it [one nation, party to a treaty] may think proper to make."³ In May he pointed out, in another paper, that France had entered upon an

¹ Even as late as 1800 Callender maintained that Washington had no right to open the question whether the French Minister should be received or not; for the Constitution says that the President shall *receive* ambassadors, it does not say that he shall *refuse* them. (Prospect, 107.)

² Works, iv. 29.

³ Ibid., 75.

aggressive crusade on behalf of liberty everywhere, and showed that the United States could not allow themselves to be dragged into such an enterprise.¹ In the summer of 1793 he began to write newspaper articles about neutrality. Defending the neutrality proclamation, he said: "It only proclaims a fact with regard to the existing state of the nation," and repeated the same criticism of "gratitude."² He said with truth that there was no man in France who was more friendly to the United States than Louis XVI., and the positive point which he urged was that we should learn to avoid foreign friendships. In August he prepared and issued instructions to the collectors of customs as to their duties toward the ships of belligerents.³ Jefferson reports him as having said in November of that year: "If all the people in America were now assembled, and should call on me to say whether I am a friend to the French Revolution, I would declare that I have it in abhorrence."⁴ In the course of the next few months the proceedings of England against neutral rights were far more serious in their practical effects than those of France. In March, 1794, Hamilton proposed to Washington to raise an army of twenty thousand men and put the country in a state of defence against England.⁵ At the same time, in the "*Americanus*" Papers, he

¹ Works, iv. 109.

² Ibid., 165.

³ Ibid., 236.

⁴ Jefferson's Writings, ix. 177. Cf. Works, viii. 303, for Hamilton's view of the French Revolution in 1793. He distrusted it from 1789. (Works, viii. 206.)

⁵ Works, viii. 316.

was discussing the question how far love of liberty should lead Americans to take sides with France. He expressed the opinion that true liberty had been wounded by France, and discussed the question: If we help France, how shall we do it, and to what extent? He thought that "France may find herself at length the slave of some victorious Sylla."¹ In his writings of these years, 1793 and 1794, it is plainly evident that his own opinions were clearing up, so that he was more conscious of the real issue between himself and the noisy friends of liberty. It was that he was an enthusiastic believer in constitutional liberty, or liberty under law, but that he detested the declamatory phrases and empty generalities of the French revolutionary school, while he thought their working principles anarchistic.

In April, 1794, he wrote to Washington that there were three parties: first, those who wanted peace with all nations, if possible; second, those who wanted war, if possible; third, those who did not want war, but were anxious to keep alive hostility with England, even at the risk of war. The first party, to which he belonged, wanted to prepare for war by military preparations, providing revenue, and obtaining power to restrict commerce, but to negotiate in the mean time so as to avoid irritation. He disapproved of the sequestration of debts at any time,—a measure which was then proposed in Congress. He thought that it would now be a provocation to Great Britain. He also disapproved of non-intercourse, as harmful to our

¹ Works, iv. 261, 263, 264.

revenue, and not very harmful to England. This was the other proposition which was pending. It is another example of faith in commercial war.¹ This letter, which is very long and contains a discussion of the entire situation, which was extremely grave, ends with a proposition to send a minister to England. He nominated Jay, declining for himself if he should be thought of; and he proceeded to draw a memorandum for instructions to the minister, and heads for a treaty of commerce.² This was, in fact, his method in all his work. He sought a device to meet the exigency, and having seized upon the cardinal idea of what he thought would meet the purpose, he filled it out in its details, and proceeded to prepare the auxiliary measures, or to provide for the incidental necessities, which would present themselves in carrying it to a successful result.

As the neutrality proclamation had helped to crystallize parties, by giving a positive measure on which sides could be taken, the appointment of Jay furnished another opportunity of the same kind. The opposition in each instance were extremely perplexed to say what they would have done. They indulged in vague and incoherent declamations, for neither then nor since has anybody been able to bring any reasonable

¹ Callender maintained that the United States, by cutting off intercourse with the West Indies, could bring England to sudden and utter ruin. This was the device proposed for the United States to adopt, if it refused to negotiate and sought to enforce redress. (*History of 1796*, 261.) The "Prospect" is full of the same notion.

² Works, iv. 283.

objection to the policy of neutrality. The attempt, also, in Jay's mission, to have peace if possible, was too plain a dictate of common-sense to be opposed with any sound argument. There was reason to suspect that it was too sound and wise to be satisfactory ; and throughout all the declamation it is easy to perceive that there was a comfortable sense of security that there could not really be any war, and that the pleasure of indulging hatred of England and love of France might be enjoyed with impunity, while the utility of it for domestic party purposes might be obtained without risk.

In January, 1795, Hamilton resigned ; but he by no means ceased to be the principal agent in public affairs. The position which he held was a very extraordinary one. It might be properly described as a minister without a portfolio. Wolcott, who succeeded him in the treasury, had been Comptroller of the Treasury under him, and leaned upon him after he resigned. Washington also consulted him upon every important question which arose ; and later his correspondence with Pickering and McHenry shows that his relations with the administrations, and his power in them increased, instead of declining. In 1795, as soon as Jay's treaty was received, he made a study of it. In July he wrote a commentary on it for Washington.¹ He objected to the article about the West India trade, and approved of the action of the Senate in reserving it from the ratification. He also objected to the article which made provisions contraband.

¹ Works, iv. 351.

His final judgment on it was: "The truly important side of this treaty is that it closes, and upon the whole as reasonably as could have been expected, the controverted points between the two countries." He advised that the ratification should be sent, with orders to our agent not to deliver it, if the provision order was in force, and with a careful remonstrance against the principle of that order. He had already begun the work of defending the treaty in the newspapers. He affirmed that our motto should be "Peace and trade with all nations; beyond our present engagements, political connection with none." He said that an attempt was being made to make us a satellite of France, and entangle us in all European broils.¹

The public feeling had been so excited about this treaty, without any intelligent knowledge of it, and for no reason which one can now understand, unless it be a sentimental unwillingness to have any friendly relations with an enemy of France, that the attempts to discuss it in public turned into riot. At a meeting at New York which Hamilton tried to address, he was hit by a stone and obliged to desist; but he began another series of papers, the best which he ever wrote, — an enlargement really of the commentary on the treaty for Washington, already mentioned, in which he discussed every question in the recent history, in national and international law, and also of sentiment, which was raised by the treaty, or in connection with it. These papers really form a large book. They completely routed the opposition on every argument of

¹ Works, iv. 363.

fact and law which they had raised. He said that the other party, "if they are sincere, must think that national honour consists in perpetually railing, complaining, blustering, and submitting."

The battle over this treaty did not end with its ratification. In March, 1796, Livingston moved for the Jay instructions in the House of Representatives. The purpose was said to be to see whether impeachment would be advisable. Callender blamed this, saying that it was not the real reason, and that it was not honest to allege it; that the real reason was to fix the perfidy of Jay in breaking his instructions, and to draw Hamilton into the matter.¹ It is difficult to tell which of these grounds would excite more contempt from a modern point of view. In April the House resolved: "When a treaty stipulates regulations on any of the subjects submitted by the Constitution to the power of Congress, it must depend for its execution as to such stipulations on a law to be passed by Congress." This is one of the points in which later opinion and practice have come to the position maintained by the opposition of that period.²

Hamilton said that the real objection to giving Jay's instructions to the House was that it was "a crude mass, which will do no credit to the administration." He thought so at the time, but could not revise the work of another department. It appears that his own memoranda were not adopted.³ His opinion was

¹ History of the United States in 1796, 322.

² Cf. 130 U. S. Sup. Ct. Rep. 581.

³ Works, viii. 387.

that the treaty was condemned before it was known, for party reasons. Jay was mixed in New York politics, and it would not do to allow his negotiations to succeed, if it could be prevented. He was also a candidate for the presidency with Adams and Jefferson, which heightened the same necessity.¹ Fisher Ames said that "if a treaty left to King George his island, it would not answer; not if he stipulated to pay rent for it. . . . The difficulty is not to overcome the objections to the terms, but to restrain the repugnance to any stipulation of amity with the party. . . . Any foreign influence is too much, and ought to be destroyed. . . . It is enough to be Americans; that character comprehends our duties, and ought to engross our attachment. . . . This instrument, however misrepresented, affords to America that inestimable security [against war which was feared in 1794]. . . . Profit is every hour becoming capital. The vast crop of our neutrality is all seed wheat, and is sown again to swell almost beyond calculation the future harvest of prosperity. In this progress what seems fiction is bound to fall short of experience."²

Dec. 16, 1796, Hamilton wrote to King: "We are labouring hard to establish in this country principles more and more national, and free from all foreign ingredients, so that we may be neither 'Greeks nor Trojans,' but truly Americans."³ The following from a letter to Wolcott, April 20, 1796, in the height of the

¹ Works, iv. 375.

² Annals of Congress, 1795-1796, 1249.

³ Works, iv. 436.

contest in the House, shows how little inclined he was to truckle to England: "The British Ministry are as great fools or as great rascals as our Jacobins, else our commerce would not continue to be distressed as it is by their cruisers. . . . I hope a very serious remonstrance has long since gone against the wanton impressment of our seamen. It will be an error to be too tame with this overbearing Cabinet." ¹

The French Government construed Jay's treaty as a grievance to themselves. Feb. 15, 1796, the French Minister of Foreign Affairs told Monroe that France considered Jay's treaty as having annulled the treaty of alliance with France from the time of its ratification.² On the 11th of March he formulated the complaints of France in connection with the treaty. They were, (1) Inexecution of treaties; (2) The outrage committed on Fauchet by the English frigate "Africa;" (3) The sacrifice of the connection with the French Republic. On the 7th of July he added to these a complaint that the United States had entered into an alliance with the enemy of France during war, and of the abandonment by the United States of the doctrine that free ships make free goods.³ Monroe closes his introduction with a long paragraph containing a bitter comparison between the advantages of a close alliance with France, and the situation created by Jay's treaty. The latter he describes thus: "War hanging over us, and that not on the side of liberty and the just affections of our people, but of monarchy and our late

¹ Works, viii. 393.

² Monroe's View, 310.

³ Ibid., 321, 355.

most deadly foes ; and we are made fast by treaty, and by the spirit of those at the helm, to a nation bankrupt in its resources, and rapidly verging either to anarchy or despotism. Nor is this all. Our national honour is in the dust. We have been kicked, cuffed, and plundered all over the ocean ; our reputation for faith scouted, our government and people branded as cowards, incapable of being provoked to resist, and ready to receive again those chains we had taught others to burst. Long will it be before we shall be able to forget what we are, nor will centuries suffice to raise us to the high ground from which we have fallen.”¹ This final prophecy has not been fulfilled. Monroe’s “View” ought not to be read without Washington’s notes on it.² They are the most acute and sarcastic thing we have from Washington’s hand.

Jan. 19, 1796, Hamilton wrote to Washington : “We seem to be [with France] where we were with Great Britain when Mr. Jay was sent there, and I cannot discern but that the spirit of the policy then pursued with regard to England will be the proper one now in respect to France.”³ In June he wrote to Wolcott that Monroe must be recalled, and he proposed Pinckney as his successor.⁴ On the 2d of July a French decree was published, that France would treat neutrals as neutrals allowed themselves to be treated by England. This was in retaliation for Jay’s treaty ; and the Americans found that, having secured living terms with one belligerent, they were driven

¹ Monroe’s View, lxvi.

³ Works, viii. 377.

² Washington, xi. 504.

⁴ Ibid., 403.

over into a collision with the other. Hamilton followed this new phase of the subject by writings which ran through the winter of 1796-1797.

A new element of danger was added by the fact that there was a presidential election in 1796, and that the new French minister, Adet, was disposed to meddle with it. In February, 1797, Hamilton expressed the opinion that the French resentment was very much levelled at Washington, and he thought that the change of administration might afford an opportunity for better relations.¹ In March he wrote to Pickering, urging that a special commission should be sent to France; that it would be good policy for its effect on domestic politics, even if the commission was not received. He was not willing to give a construction to the refusal to receive Pinckney which should seem to shut the door against explanation. He thought that there was plenty of room for a commission to inquire what the position of France was. "The commission should be instructed to explain, to ask a rescinding of the order under which we suffer, and reparation for the past; to remodel our treaties under proper guards." He was especially convinced of the necessity of the last point. He nominated a commission, to consist of Jefferson or Madison and some conservative Northern man, like Jay or Cabot.²

Thus, although he was properly affected by the rejection of Pinckney, he was cool about it, and disposed to proceed very carefully. His writings were suspended for a year, from March, 1797, to March, 1798; but

¹ Works, viii. 449.

² *Ibid.*, 452.

when he knew what the result of the mission to France was to be, he began again the series of public papers, discussing the relations between the two countries. The X Y Z papers were sent to Congress, April 3, 1798, and the result was that a state of war was produced between the two countries.

On the one side the opposition endeavoured to palliate the corruption of the proposition that the United States should bribe the members of the French Directory, and buy a treaty. Callender said that there was no reason to be so angry, if France did ask for money; we had paid the Algerines for a treaty. He said that the X Y Z story was an imposture; that there was no harm in a gift to the Directory, and that the money would have been well expended to obtain their friendship.¹

On the other hand, there was no real desire for war. It was difficult to imagine that the United States would be invaded, so that a domestic army would be necessary. The expense was a terror. The Secretary of War was not at all anxious to occupy his office during hostilities. The Secretary of the Treasury was timid.² There were only a few — and it is not clear that Hamilton was one of them — who rejoiced at the opportunity for establishing an army and navy. There was a disposition to use the enthusiasm of the moment to accomplish some objects which were regarded as of permanent importance, and it may be that Hamilton sympathized with it, but the evidence of it is not in his works. When he

¹ Prospect, 58, 110, 129, 131.

² Works, vi. 167.

heard of Adams's message of Feb. 18, 1799, nominating Murray to be joint minister to France with Pinckney, he wrote that Murray was not strong enough for the position, and that there ought to be three ; also that he would write further, but no later letter exists.

It was, then, no light trial which befell the infant State, to maintain neutrality, defend its rights, preserve peace, and grow into strength, between two such belligerents abroad and its own volatile population at home. It is not strange that it did not succeed ; but the foreign policy of the federalists commands far more unqualified praise than their domestic policy. They met a demand for sentimental politics in foreign policy, and for a connection between this country and a foreign nation, in which relation this country would be a very inferior and dependent party, by doctrines of complete national independence and impartial neutrality, which we would to-day regard as the purest commonplaces of national policy. Both in and out of office, Hamilton's mind was the one which guided and prevailed in that policy. He had the initiative position, and he contributed the creative energy to devise measures for the various difficulties as they arose. During the first three administrations the federalists were not in any active sympathy with England. Their opposition to entanglement with France produced an appearance of such sympathy which was entirely accidental. After the nineteenth century opened the case changed. They came to believe that England's contest with Napoleon meant a war

of liberty against military depotism. It was then their turn to "sympathize with liberty." It is, however, one of the most extraordinary facts in history, that the Jeffersonians, after they came to power should have all the questions of foreign policy which arose under the federal administrations presented to them over again, and should have an opportunity to try their policy on the same field and under nearly the same conditions as the federalists.

The struggle for neutrality lay outside the main current of Hamilton's career. The significance of it was that, by bringing to a peaceful settlement the open questions in the peace of 1783 and extricating the country from its entanglements with France, the United States obtained true political independence of Europe. In Washington's Farewell Address, he helped to formulate the doctrines of international independence and internal concord.¹

¹ Binney, Washington's Farewell Address.

CHAPTER XV.

STATE OF WAR WITH FRANCE ; THE PROVISIONAL ARMY ;
HAMILTON'S POSITION IN IT.

THE matter of neutrality, therefore, had, in 1798, entered on a new phase ; and the United States found itself in a state of war. Hamilton's work in this new state of things also changed in form. He became second in command of the army, and in this new field of activity he distinguished himself by the application to military affairs of the same energy which he had displayed in the literary combats of the previous five or six years. Being dissatisfied with the energy of the Secretary of War, he wrote urging that himself and Knox should be called into service, in order that he might help. He wanted in this way to get a chance to do what he thought that the Secretary was neglecting.¹ On the 1st of November, 1798, he went to Trenton, where the officers of the government then were, on account of the yellow fever in Philadelphia, to confer with Wilkinson and McHenry. This conference was with regard to possible enterprises against the Spanish possessions on the southwest. Hamilton always had the interests of the United States in that quarter distinctly before his

¹ Works, vi. 91.

mind. In January, 1799, he wrote: "I have been long in the habit of considering the acquisition of those countries as essential to the permanency of the Union, which I consider as very important to the welfare of the whole."¹ Indeed, it appears that his ideas went even further. In June, 1799, he wrote: "We ought to look to the possession of the Floridas and Louisiana, and we ought to squint at South America."² It was charged against him that he desired to use the army for domestic purposes, in order to enforce that "energetic" and high-toned administration which he desired. The proof of such a desire on his part is wanting, but he did believe that a war with France would be a war with her ally, Spain, and that it would open an opportunity which ought to be used. For this purpose he wanted to carry the army up to its proposed limit, fifty thousand. He wanted to think of classing all males between eighteen and forty-five for the militia, so that drafts could be made in case of invasion. He also engaged in correspondence with Miranda in furtherance of the same enterprise.³

¹ Works, viii. 523.

² Works, vi. 136, 185. In 1802 and 1803 he followed with great anxiety the transfer of Louisiana to France. We should negotiate for it, and, if that fails, take it by force. "Energy is wisdom." He would not have joined the federalist disunionists whose grievance was the acquisition of Louisiana. (Works, viii. 606; v. 465.) There is a vague report in J. Q. Adams's Diary in 1829, that Hamilton wrote to Madison in order to quiet Jefferson's scruples about the constitutional power to buy Louisiana. (Diary, viii. 117.)

³ Works, viii. 505.

But the most interesting thing in this connection is to notice his indefatigable industry. Dec. 13, 1798, he drafted a letter which Washington might send in reply to inquiries of McHenry, which really covered all the important points of army business at the time, including details of organization, discipline, and uniform.¹ He drew up plans of defence, including army, navy, military academy, loans, taxes, and secret service money.² He formed plans for preventing desertion, and reported to Washington on the state of recruiting in the different States. He prepared plans for the commissariat and quartermaster's department, also for the medical department, for the organization of the militia.³ As to the latter his idea was that, "in case of domestic insurrection, no man *able* to serve shall be excused on any condition." One who refused was to be imprisoned or forced to labour on the public works. In August he wrote to McHenry, urging him to organize a supply department, and warning him of the defects of the accountability in the service. In November he wrote again, trying to put some of his own vigour into the Secretary: "Confidence must sometimes be reposed in an after legislative sanction and provision," in incurring expense. "I commit myself, without hesitation, to the consequences of this opinion, because, as far as I am concerned, I would rather be responsible on proper occasions for formal deviations, than for a feeble, insufficient, and unprosperous course of business, pro-

¹ Works, vi. 97.

² Ibid., 138.

³ Ibid., 144, 148, 149.

ceeding from an over-scrupulous adherence to general rules ; and I have no doubt that a different spirit will ever be found in experience injurious, equally to the interests of the State and to the reputation and success of the persons whom it may govern.”¹

This passage expresses the temper of the man more completely than any other which he ever wrote. His mind being fixed on the thing to be done, his energetic striving for it was impatient of formal obstacles and unnecessary difficulties. It is evident also how the principle which he laid down must involve him in responsibility. One of his most remarkable traits, contrasting in the strongest manner with his contemporaries, was his fearlessness of responsibility. If he went upon that principle, he was sure to bear the brunt of every contest provoked by his enterprises ; and as he was always in advance of other people, he was sure to excite their wonder, doubt, and suspicion by his enterprises. His notion that the principle he advocated must redound to the “reputation and success of the persons whom it may govern” was most fallacious, as his own experience proved. Jefferson’s reputation and success show how those two things are to be won. It certainly was not by committing one’s self unreservedly to the advocacy of such measures as one considered useful for the public good, and constantly spending one’s effort in devising new measures of that kind, without regard to the interests, personal feelings, prejudices, etc., which those measures were sure to encounter.

¹ Works, vi. 259.

In November he prepared a complete plan of a military academy, and proposed that the work of preparing improved tactics should be divided up among competent persons. In December he sent a plan for uniforms, and wanted a revision of the articles of war undertaken. In 1800 he undertook an investigation of the "step" which would be most advantageous for army marches, and prepared a plan for the pay department.¹

The army was disbanded in June, 1800; but he continued his work for the organization of the peace establishment, forts, arsenals, etc., etc. He was badly needed in the second war, when things fell back into all the evils of loose and negligent administration.

Before the disbandment of the army was reached, however, and while he was expending the energy which has been described upon the organization, the effect of it upon the public was to make them wonder why he did it, and what he was preparing for, and to make them suspect that he had some ulterior design. They could not understand why he should leave a lucrative profession, to accept a position on a very moderate salary, and devote all his time to this business; and it was easy for the opposition to interpret this action, especially in connection with Fries's rebellion, as a part of that scheme for overthrowing the Republic with which their leaders had been charging him for seven or eight years.

The accumulated and pent-up rancour of years, the inevitable reaction of the popular temper against

¹ Works, vi. 91 *et seq.*

a disciplinary régime which, although called for, was undeniably pushed on with rigour and severity beyond due measure, were bringing on a crisis in which party virulence reached a greater height, perhaps, than it has ever reached since. Callender wrote, in 1800: "Every Virginian who values his freedom should prepare himself to meet the worst that may happen. He should perfect himself in the use of a musket with as much diligence as the devotee learns his catechism."¹

Virginia had already begun to arm. When Hamilton heard of it he wrote that the government should face the risk that "the opposers of the government are resolved, if it should be practicable, to *make its existence a question of force.*" He proposes measures to strengthen the Union: (1) an extension of the judiciary; (2) construction of roads to facilitate communication; (3) a society to reward inventions and improvements. He proposed (in a private letter) a system of federal justices of the peace to reach petty divisions, to build more ships of war, to cut up the great States, to pass laws against incendiary and seditious practices. This is to be the unpublished programme of the federalists.²

¹ Prospect, 88.

² Works, viii. 518.

CHAPTER XVI.

THE ELECTION OF 1800 ; THE CATASTROPHE OF THE
FEDERALISTS ; HAMILTON'S LATEST VIEWS AND
SENTIMENTS.

WE have described Hamilton's position after his resignation as that of a minister without a portfolio. This position was harmless during Washington's administration ; for when Washington himself was consulting Hamilton, and knew that his secretaries were doing so, there was no ground of complaint. The Cabinet, however, continued on under Adams ; for, according to the notions of that time, the Cabinet ministers would be far more permanent officers than the President, and it was conceivable that a set of ministers might remain for a long period in charge of the great departments, while the President was changing every four years. This was one of the cases where it remained for experience to prove how impracticable a plan of this matter was, which seemed at first to be a matter of course.

When, now, Hamilton continued under Adams's administration to give advice to the same ministers, both gratuitously and at their request, upon all the important public questions, not, it is true, under concealment from the President or in deception of

him, but still without the knowledge to which he certainly was entitled, the proceeding seems improper and unjustifiable. It is true that Mr. Adams's personal character was irascible, jealous, and suspicious; but that fact is entirely irrelevant, since a President of the United States must have been contemptibly meek to allow any such arrangement to stand without resenting it. It is also true that the long absences of Adams from the seat of government, on account of which he left to his secretaries a great deal of independence and responsibility, were the cause of their seeking advice and support from Hamilton, and it may be said, by way of excuse, that they were continuing a habit which had been formed, without probably realizing the aspect which it would bear from the standpoint of the President; but it was unavoidable that this system should produce a catastrophe. It is to be noted, also, that so long as the war was anticipated and military measures were being taken, Hamilton, as real head of the army, was rising in importance. That he and his friends should be pleased at this state of things, but that it should be a powerful motive for Adams to seek peace, was, to say the worst of it, human nature.

In 1798 the leading federalists were carried away by the momentum of their own ideas. They were unconsciously trying to use the French incident as a means of carrying "high-spirited" measures. They had fallen under the fate which seems to beset all parties, that in the course of time their own best tenets become fixed ideas, which rise to a dominion over

the men themselves, enclosing them in a network of delusion, from which they cannot deliver themselves, so as to see the real facts of the case, and the attitude which they are adopting to the forces at work about them. The federalists became stubborn and pertinacious in the attempt to force the dominion of their ideas, and entirely lost touch with the public opinion of the country, and set themselves in antagonism to the genius of the people and the ruling forces of American life. Their task had been to soften, moderate, and school down to regular activity the wild forces which had been set loose by the Revolution; but their faults now came to the surface. They had not patience enough for the tremendous task they had undertaken. They did not appreciate the fact that all things must grow; that the fruit cannot be obtained in the ploughing season; and that the grand results at the end are only to be reached by a self-control which will prevent headlong progress and premature catastrophes. We have seen how much "energy" was needed in the period of the Revolution and the Confederation; but the people had never appreciated the need, and the attempt to force it on them had made "energy" a synonym for tyranny and over-government. That word had become a battle-cry to rally one party, and to stir the other to rage. Here is a grand lesson in the futility of all those notions which regard statesmen as moulding nations or imposing by their will the shape which institutions shall take, or the direction which civil affairs shall follow.

It does not appear that Hamilton was a leader in

this extravagance and excess,¹ and Adams certainly felt the mistake which was being made. His rage was boundless when he came to realize the fact that his administration had been wrecked by passing out of his control into that of a set of men who had committed it against his judgment.

As the election of 1800 approached, however, Hamilton committed himself more and more to the view of the extremists, if he had not sympathized with it before. In June, 1800, he made a tour through New England. He reported that the first-class leaders there were "right,"—that is, opposed to Adams,—that the second-class leaders were too much disposed to be wrong; and said that he had determined to inform them of the objections to Adams.² In September he wrote to Wolcott: "The facts hitherto known have very partially impaired the confidence of the body of federalists in Mr. Adams, who, for want of information, are disposed to regard his opponents as factious men."³ In the summer of that year he prepared a pamphlet for circulation, among the leading federalists, in secret. Burr, however, obtained a copy of it and published it.⁴ In this perverse and mischievous enterprise Hamilton undertook to win a federal victory and defeat Adams

¹ He thought the alien law deficient in guarantees of personal liberty (*Works*, viii. 526); wrote to Pickering in respect to it, expressing anxiety as to how it would be executed: "Let us not be cruel or violent" (*Ibid.*, 490); and again to Wolcott, "Let us not establish a tyranny" (*Ibid.*, 491).

² *Works*, viii. 523, 555, 560.

³ *Ibid.*, 563.

⁴ *Ibid.*, 392.

at the same time, which he could only do by really playing a trick upon the body of the party, who, as he himself had just testified, were loyal to Adams. The movement in which this pamphlet was the most important incident was carried on by a diligent correspondence between the leading federalists in different States. It is astonishing that this correspondence itself did not open their eyes to the folly of their enterprise. It is evident that they had quite lost the idea of "leading" a party by due measures, and had come to the point of trying to command it by authority.¹ As soon as they proposed their plan to any one who was not in the secret, they met with wonder, doubt, protest, and difficulty.

The pamphlet is long, and must be construed as a partisan attack on Adams. Hamilton begins with a critical discussion of Adams's character and career, and of his own personal relations to him, not omitting incidents which are trivial and the interpretation of which was at least questionable.² He then comes to the matters of the French mission, Fries's rebellion, and so on, in which he takes the extreme view against Adams, although, as has been said above, we

¹ Gibbs, ii. 366-430.

² On page 397 the compliment of the French lady to Adams is incorrectly quoted. It should read "*de la négociation*." She did not tell him that he was "the Washington of negotiation," but the Washington of *the* negotiation, — namely, that of 1782. (Adams, iii. 339.) As regards the extravagance of the compliment and Adams's vanity, as manifested in the way in which he took it, the difference is essential. The error is in the original pamphlet of 1800.

have not evidence that he shared that view at the time when the events occurred. He says: "Much is it to be deplored that we should have been precipitated from this proud eminence without necessity, without temptation. The later conduct of the President forms a painful contrast to his commencement. Its effects have been directly the reverse. It has sunk the tone of the public mind; it has impaired the confidence of the friends of the government in the Executive Chief; it has distracted public opinion; it has unnerved the public counsels; it has sown the seeds of discord at home, and lowered the reputation of the government abroad." The President's resolution to send another embassy to France was "the groundwork of the false steps which have succeeded." He blames Adams for not taking the advice of his ministers. "A president is not bound to conform to the advice of his ministers, he is even under no positive injunction to ask or require it;" but he ought to do it, in order to make the place of a minister influential and desirable. He shows great disappointment at the disbandment of the army. He explains that his visit to Trenton, which excited Adams's suspicions and resentment,¹ was innocent and proper. He blames Adams for the pardon of Fries, because it was necessary that an example should be made, especially in the State of Pennsylvania. Yet he does not advise that votes should be withheld from Adams. His point here is not so absurd as it has sometimes been represented. He did

¹ Adams, ix. 299.

not argue against Adams, and then tell people to vote for him. His point was, that all the votes of the East should be given to Pinckney with Adams ; that none should be thrown away, in order to secure to Adams the first place ; but that if some opposition votes in the South should be given to Pinckney, he ought to have all those of New England, so that he would come in first.¹ He states his own reasons for writing this letter as follows : “ To promote this co-operation, to defend my own character, to vindicate those friends who with myself have been unkindly aspersed, are the inducements for writing this letter.” He recognizes the inexpediency of the enterprise in which he is engaged, and expressly recognizes the fact that “ the body of federalists, for want of sufficient knowledge of facts, are not convinced of the expediency of relinquishing him ; ” yet he says that “ to suppress truths the disclosure of which is so interesting to the public welfare, as well as to the vindication of my friends and myself, did not appear to me justifiable.”

The gravamen of this opposition to Adams rested chiefly, therefore, on the embassy to France. In the retrospect it seems clear that Adams was right to send the second embassy to France, just as Washington was right to send Jay to England. A little concession and conciliation overcame a difficulty, and set aside hos-

¹ J. Q. Adams asserted that the object of the conspiracy was to get the vote of South Carolina for Pinckney and Jefferson, while holding all Northern federal votes to Pinckney and Adams. (*Federalism*, 151.)

tilities, where the exaggerated federalist policy would have cultivated a misunderstanding and nursed a conflict to large proportions. As to Fries, the sacrifice of a human life to make an example does not command our approval; and if it was possible, as it was, to treat the rebellion with neglect and dismiss the culprit, few now would be found to say that it was not right to do it.

Adams wrote a review of this pamphlet in 1809.¹

It precipitated the catastrophe of the federal party. On account of it, Hamilton lost the leadership. When the election went into the House, and the federalists entered into a plan to put Burr over Jefferson, he remonstrated and advised against it, but his influence could not control. The federal party lost power and disappeared. There was a coarse justice in the epitaph which an opponent proposed for it:—

“ We were well;
Would be better,
And here we are.”²

From this time Hamilton was on the outside of the administration of public affairs. His policy of rigour and vigour, and his too relentless methods of pursuing it, although they had undoubtedly contributed to the strengthening of civil order and discipline which was imperatively needed, had not only produced a rancorous opposition, but had also broken up his own party, and left him without direct influence on public affairs.

It will be interesting to put together some of the

¹ Adams, ix. 241.

² *Hamiltoniad*, 52.

most pointed expressions which we possess from him in the last four years of his life.

In February, 1800, he obtained a glimpse of one truth which set in clear light his greatest mistake. "America, if she attains to greatness, must *creep* to it."¹ "Grow" would have been better than "creep." In March, 1800, he says: "I feel no despondency of any sort. As to the country, it is too young and vigorous to be quacked out of its political health; and as to myself, I feel that I stand on ground which sooner or later will insure me a triumph over all my enemies."² In August he addressed a letter to Adams, mentioning reports that the latter had spoken of a "British faction," and had named leading federalists, especially Hamilton, as belonging to it. Hamilton asked if this was true, and if so, what his grounds were for such an assertion. Adams did not reply. In October, Hamilton again addressed him, declaring that any such report was "a base, wicked, and cruel calumny."³ He who reads many of the diaries and letters of early statesmen is forced to ask, Who were the evil-disposed men and wrong-doers? Each man, in his writings, reveals a strong disposition to do right, and to pursue an honourable and patriotic policy, while he refers to some others, his opponents, as ill disposed and dangerous. The true inference is that there was no British faction, no men sold to France, no subverters, evil plotters, or unpatriotic men among all whose names stand high on the roll of statesmen. All suggestion of that sort, by whom-

¹ Works, viii. 543.

² Ibid.

³ Ibid., 445, 564.

soever imported into the record, may be stricken out as due only to the passing passion of party, and the ephemeral ambition of individuals.

In December Hamilton expressed dislike of the treaty with France, but thought it better to ratify it.¹ In January, 1801, he wrote to Bayard that Jefferson would not lower the executive office, would not follow his theories against his popularity or interest, would temporize and maintain what is; that he was not violent, and favoured France only for popularity.² In that year he wrote a series of eighteen papers in criticism of Jefferson's Message. He was especially sarcastic against Jefferson for releasing an Algerine pirate ship which had been captured, on account of a doubt as to the right of seizing it.³ He expressed the opinion that the United States had experienced evils from too large immigration.⁴ He uttered the sentiment "Our National Government; the rock of our political salvation."⁵ In February, 1802, he wrote to G. Morris: "Mine is an odd destiny. Perhaps no man in the United States has sacrificed or done more for the present Constitution than myself; and, contrary to all my anticipations of its fate, as you know, from the very beginning, I am still labouring to prop the frail and worthless fabric. Yet I have the murmurs of its friends, no less than the curses of its foes, for my reward. What can I do better than withdraw from the scene? Every day proves to me

¹ Works, viii. 570.

³ Ibid., vii. 200.

² Ibid., 581.

⁴ Ibid., 242.

⁵ Ibid., 248.

more and more that this American world was not made for me.”¹

In this passage he distinctly utters his own consciousness of the discord between himself and the political drift of the country. It would probably have been too much to expect of human weakness and fallibility that he should have been able to exert those influences which we have traced in his career, upon the faults of American public life, yet should have been able to maintain sympathy with the invincible forces which predominated in it, so that he could co-operate with them.

Hamilton favoured the constitutional amendment changing the mode of electing presidents.² The repeal of the Judiciary Act seemed to him so serious that he wanted a conference of the leading federalists as to the course to be pursued.³ In April, 1802, he wrote: “It has ever appeared to me a sound principle to let the Federal Government rest as much as possible on the shoulders of the people, and as little as possible on those of the State legislatures.”⁴ “Men are rather reasoning than reasonable animals, for the most part governed by the impulse of passion. This is a truth well understood by our adversaries, who have practised upon it with no small benefit to their cause. For at the very moment they are eulogizing the reason of men, and professing to appeal only to that faculty, they are courting the strongest and most active passion of the

¹ Works, viii. 591.

² Ibid., 592.

³ Ibid., 593.

⁴ Ibid., 596.

human heart, vanity.”¹ “In my opinion, the present Constitution is the standard to which we are to cling.” He proposed to organize the Christian Constitutional Society, to support the Christian religion and the Constitution by means of pamphlets, and concerted action to elect fit men.

In a letter to Timothy Pickering in 1803 he gave a strikingly correct definition of a republican form of government:² “The essential criteria of which are that the principal organs of the executive and legislative departments be elected by the people, and hold their offices by a responsible and temporary or defeasible tenure.”³ This definition shows that he had analyzed this and cognate political notions with care, and that when he criticised a republican form of government, he knew what he meant. Did his opponents know what he meant? Did not they suppose that a republican form of government includes something about equality and majority rule? Already in the convention of 1787, in answering the question whether the Senate and Executive proposed by him were republican, he had said: “Yes, if all the magistrates are appointed, and vacancies are filled by the people, or by a process of election originating with the people.”⁴

¹ Works, viii. 597.

² His definition of liberty was less fortunate: “Its true sense must be the enjoyment of the common privileges of subjects under the same government.” (Works, iii. 453 [1784].) On that definition the Russians have liberty. Hamilton’s definition, however, shows that he was striving to define liberty in terms of constitutions and institutions.

³ Works, 607.

⁴ Ibid., i. 373.

April 20, 1804, he wrote to his brother-in-law: "I say nothing on politics, with the course of which I am too much disgusted to give myself any future concern about them."¹ On the day before the duel he wrote a very short letter, the last which he ever wrote except the farewell to his wife, which may be regarded as his political testament. "I have had on hand for some time a long letter to you [Sedgwick] explaining my view of the course and tendency of our politics, and my intention as to my own future conduct. . . . I will here express but one sentiment, which is, that dismemberment of our empire will be a clear sacrifice, of great positive disadvantages, without any counterbalancing good, administering no relief to our real disease, which is democracy, the poison of which, by a subdivision, will only be the more concentrated in each part and consequently the more virulent."² His last utterance, therefore, was one of anxiety for the Union; and the Union to his mind was valuable as putting constitutional restraint upon those features of democracy which were always present to his mind when he used the term, and which we have sufficiently indicated throughout the course of this work, as presenting great social and political dangers in his time.

In connection with the controversy which arose between J. Q. Adams and the sons of the great federalists in 1828, a statement was made by Plumer that he was informed by Tracy, at the time, that Hamilton had agreed to attend a meeting of federalists in Bos-

¹ Works, viii. 615.

² Ibid.

ton in the autumn of 1804.¹ The meeting was understood to be intended "to recommend the measures necessary to form a system of government for the Northern States." The death of Hamilton prevented it from taking place.² King told J. Q. Adams, in 1804, that Hamilton entirely disapproved of the project.³ His last letter may be understood to have unexpressed reference to this project. He left his last word against any disunion enterprise at that meeting.⁴

Hamilton never obtained a conception of a governmental system, under a democratic republican form, such as the United States has developed in the nineteenth century out of the antagonism of Hamiltonian and Jeffersonian notions, without the absolute predominance of either, under the social and economic conditions of the country ; which, in his time, no one had ever conceived of, and which Mr. Bancroft has described, rhetorically but correctly, as follows : "As the sea is made up of drops, American society is composed of separate, free, and constantly moving atoms, ever in reciprocal action, advancing, receding, crossing, struggling against each other and with each other, so that the institutions and laws of the country

¹ Plumer's Plumer, 298.

² Federalism, 145.

³ Ibid., 148.

⁴ J. Q. Adams mentions a letter of J. R. Van Rensselaer which was shown to him in a newspaper in 1829, "to rescue Hamilton's reputation from having participated in the disunion project of 1804. But it rivets upon him the passion for being at the head of an army, and his presentiment that he should be killed by Burr." (Diary, viii. 115.)

rise out of the masses of individual thought, which, like the waters of the ocean, are rolling evermore.”¹

The growing density of population, the greater activity of social life, the greater strain of the struggle for existence, the greater wealth, the higher intellectual activity, the drill and discipline of a more highly developed industrial organization, the quickened ambition of all classes for individual success and happiness, the universal dissemination of ideas by literature, producing, as it were, a greater knowledge of the world, an indescribable sense of the limits within which all things must be had and enjoyed, and perhaps also the solemn experience of the Civil War, have given to the American people the discipline which they needed in Hamilton's time, and which he hoped to enforce by the devices of a statesman, and by institutions arbitrarily invented and enforced against the genius and temper of the people.

¹ Constitution, ii. 324.

CHAPTER XVII.

THE ANTAGONISM OF HAMILTON AND BURR ; THE DUEL ;
HAMILTON'S FUNERAL ; COMMENTS ON THE DUEL
AND DUELLING ; COMMENTS OF FRIEND AND FOE
ON HAMILTON'S CAREER.

FROM 1800 to 1804 the causes which were to bring about a collision between Hamilton and Burr marched on with the precision of a classical tragedy. Already in 1792 Hamilton described Burr in a letter as moved by unprincipled ambition, bold, intriguing, and in debt. "He is for or against nothing, but as it suits his ambition." ¹ He called him "an embryo Caesar, if we have one." A little later in the same year he wrote to a member of Congress : "My opinion of Mr. Burr is yet to form ; but according to the present state of it, he is a man whose only political principle is to mount at all events to the highest legal honours of the nation, and as much further as circumstances will carry him." ² In 1800, writing to Wolcott against the support of Burr by the federalists, he calls Burr a Catiline ; is pained at the idea of his elevation by the federalists, who will become responsible for him. He will use the rogues of all parties. He repeated these ideas very many times in writing to public men in that year.³ He charged Burr

¹ Works, viii. 283.

² Ibid., 289.

³ Ibid., 565 *et seq.*

with having talked "perfect Godwinism," — which, by the way, is a revelation of what Hamilton meant by the republicanism in which he had no confidence. It was the type of republicanism advocated by Godwin and his followers.¹ "With great apparent coldness, he is the most sanguine man in the world. He thinks everything possible to adventure and perseverance; and though I believe he will fail, I think it almost certain he will attempt usurpation, and the attempt will involve great mischief."

In 1804 Burr sought federalist aid against the regular democratic nominee, in order to become Governor of New York. Hamilton supported his opponent. The federalists were divided; Hamilton having drawn as many of them as he could away from Burr, by declaring that Burr was a democrat, and would go against all their principles.²

It is a wonder that none of these clear and explicit statements of opinion about Burr ever came to the latter's hands. He could not fail to learn of Hamilton's efforts to enlighten people on what he considered Burr's true character. As Burr was ambitious and Hamilton persisted in attempts to thwart him by unfavourable reports of his public and private character, it was certain that they must come in collision. If Burr was the man Hamilton said that he was, the two men, both acknowledging the code, could not move in the same political arena without a duel sooner or later. The report of which Burr demanded an

¹ Works, viii. 583.

² Republic, vii. 770.

explanation from Hamilton was only a vague reference to the fact that Hamilton had expressed some "despicable opinion" of Burr. This Hamilton could neither confess nor deny.

The practice of duelling at the time amounted to a great public vice. The French minister, Gerard, in 1779, spoke with astonishment of the rage for duelling. Eight or nine had taken place in a few weeks, all bloodless.¹ In 1801 Hamilton's oldest son, Philip, not quite twenty years old, was shot in a duel about a quarrel at a theatre. The party newspapers abused each other over it and about it.² Coleman, the editor of the "New York Evening Post," tried to frown down duelling; but in 1803 he was forced into a duel with Thompson, in which the latter was killed.³

In his farewell to his wife Hamilton wrote that he would have avoided the duel if he could, "without sacrifices which would have rendered me unworthy of your esteem."⁴ He left a paper in which he stated his reasons for fighting, against which moral, religious, family, and business reasons were as strong as possible. His apology is: "My relative situation, as well in public as private, enforcing all the considerations which constitute what men of the world denominate honour, imposed on me, as I thought, a peculiar necessity not to decline the call. The ability to be in future useful, whether in resisting mischief or effecting good, in those crises of our public affairs which seem likely to happen, would probably be inseparable from

¹ Durand, 187.

² Hist. Mag., Oct., 1867.

³ Hudson, Journalism, 218.

⁴ Works, viii. 629.

a conformity with public prejudice in this particular." ¹ If we understand the sentiment of that time aright, a refusal on his part would have been the end of his usefulness in politics. ²

J. Q. Adams, in 1828, construed Hamilton's reasons for fighting Burr as "ambition ;" that Hamilton, anticipating civil strife, must not tarnish his military honour, lest he should be unable to share in that strife by military command. "I would hope," wrote Adams, "and may not disbelieve, that Mr. Hamilton's attachment to the Union was of that stubborn, inflexible character which under no circumstances would have found him arrayed in arms against it. But in the events of Mr. Hamilton's life a comparison of his conduct with his opinions, in more than one instance, exhibits him in that class of human characters whose sense of rectitude itself is swayed by the impulses of the heart, and the purity of whose virtue is tempered by the baser metal of the ruling passion. This conflict between the influence of the sensitive and the reasoning faculty was perhaps never more strikingly exemplified than in the catastrophe which terminated his life, and in the picture of his soul unveiled by this posthumous paper." ³

It will be perceived that this judgment turns upon the demonstration that Hamilton fought lest he should

¹ Republic, vii. 818.

² On the public opinion of the time about duelling, see the "American Register" for 1807, part ii. 85, where it is asserted that if Hamilton had killed Burr, he would have suffered no condemnation.

³ Federalism, 170

lose chances to gratify his ambition. The demonstration is not conclusive. If a man fights that he may not lose a chance to serve his country in crises which he foresees, it is not self-evident that his motive is ambition. He may be sacrificing his conscientious opinions to the highest patriotism, not to ambition. While such alternative is open, the last part of Adams's judgment appears censorious and affectedly high. Hamilton's faults in public affairs were lack of policy, too little willingness to temporize and yield to circumstances, excess of frankness, and too great willingness to force a direct issue. If the faultlessness of his rectitude and moral consistency was called in question, it would be necessary to consider the evidence that when he swerved it was from a base motive. The duel does not furnish that evidence.

He died on the 12th of July, 1804. Gouverneur Morris delivered a brief address at the funeral, on a platform in the portico of Trinity Church, four of Hamilton's sons being on the platform, — the oldest sixteen years of age, the youngest about six. Morris said: "Hamilton disdained concealment. Knowing the purity of his heart, he bore it, as it were, in his hand, exposing to every passenger its inmost recesses. The generous indiscretion subjected him to censure from misrepresentation. His speculative opinions were treated as deliberate designs."¹

Hamilton left his family really unprovided for. His investments were chiefly unimproved land in western

¹ Notes to the *Hamiltoniad*, 71, where the whole oration is given.

New York.¹ His debts were \$55,000. A subscription was made by his friends. A number of leading federalists at Boston had, a few years before, bought lands in Pennsylvania, owned by Pickering, as a mode of relieving him of the investment and setting him free to take office. They now transferred these lands to Hamilton's executors for the benefit of his family.²

We hesitate whether it is proper, for the purpose of showing the party spirit which prevailed in the public life of the time, to quote here the disgraceful comments which were published even about his funeral; but as we desire to quote some of the eulogistic judgments which have been passed upon his character and career, it seems necessary to include also comments of another character.

Paine published a review of Morris's funeral oration, in which he carped at the grammar and rhetoric of it, and gratified a venomous dislike of Morris.³ The *Hamiltoniad*, without being scurrilous, is indecent, considering the fact that Hamilton was dead, and the mode in which he died. It shows the bitter and intense feeling about monarchy and aristocracy. It is not stated who wrote the articles given in the notes, but they appear to be from other writings of the author of the poem. "We have solid evidence to believe that Mr. Hamilton wished to introduce an established church in the United States, and so inter-

¹ On the general topic of these land investments at that time, see the "Life of Robert Morris."

² Lodge's Cabot, 304.

³ *Hamiltoniad*, Notes, 74.

twine it with the government as to form that odious monster in confederation, called the Church and State interest.”¹ The evidence is that Hamilton took the communion from the Bishop of New York before his death. The writer goes on to give his opinion of bishops, and thinks that this fact proves that Hamilton carried veneration for aristocracy “to the mortal bourne.”

There are but two or three places in his works where Hamilton speaks personally of himself. In a letter to Laurens, in 1779, he declared himself “cold in my professions, warm in my friendships,” and goes on to profess very warm affection for Laurens. He makes a playful sketch of the wife he wants, and then describes himself. He mentions his small size and his big nose. The banter is not very well done, and seems out of character. He becomes tired and ashamed of it at the end.² Writing to Knox, in 1799, he said: “My heart has always been the master of my judgment.”³

Of the opinions of Hamilton by his enemies, we may note the following: Callender called him Caligula,⁴ and Alva,⁵ on account of a story which he often repeated, that Hamilton regretted that the insurgents did not burn Pittsburg in 1794. “In the convention of 1787 [Hamilton] and some other conspirators had planned the foundation of American monarchy. A design so hateful should have debarred him from the

¹ *Hamiltoniad*, Notes, 57.

² *Works*, vii. 585.

³ *Works*, viii. 531.

⁴ *Prospect*, 36.

⁵ *History of 1796*, 292.

confidence of the new government. He is the first and only favourite whom General Washington ever had. He became instantly dictator of the federal administration. On every question before Congress he vanquished the Virginian representatives. . . . For the sake of raising a standing army as the first step in the ladder of despotism, he wantonly provoked the war with the northwestern savages. To support it he abstracted from the treasury, without permission from Congress, and in contempt of the Constitution, some hundred thousands of dollars. . . . Profligate and insolent in his private manners, but plausible and deliberate in his financial projects, an aristocrat from the dictates of his understanding as well as from the views of his ambition, this man had then obtained, and still seems to possess [1800], an almost absolute ascendancy over our public counsels.”¹

John Adams said that Hamilton was the greatest organist who ever played on the caucus,² and declared that he was the greatest intriguer in the country.³ He also quotes a letter of Stoddert, who did not rate Hamilton’s discretion or the solidity of his judgment very high, and thought it a harm to the federal party that his opinions were deemed so “oracular.”⁴ Maclay mentions him to say: “Hamilton has a very boyish, giddy manner.”⁵

After his death, nobody published anything in eulogy of him which was more distinctly to the point

¹ Prospect, 106.

² Adams, vi. 543.

³ Adams, x. 124.

⁴ Ibid., ix. 301.

⁵ Maclay, 238 (1790).

than Cheetham, who was a political opponent, but being a Jeffersonian, was at the time perhaps more hostile to Burr than to Hamilton. "He who for a moment reflects that out of the Revolutionary contest, that chaos of clashing elements, arose a world of freedom, cannot but venerate the memory of those who, as it were, created it. In this most glorious, most useful, most splendid of earthly scenes, Hamilton performed a conspicuous, shall I not say, a disinterested, a patriotic part. 'Scarcely arrived at the gristle of manhood,' glowing with patriotic fire, with military ardor, he joined the creative phalanx, and signalized himself by constancy, by perseverance, and by valour. . . . His Revolutionary services entitle him to our affection, and will endear his memory to all who are sincerely attached to our independence." ¹

When Hamilton resigned, Washington wrote to him: ² "In every relation which you have borne to me I have found that my confidence in your talents, exertions, and integrity has been well placed. I the more freely tender this testimony of my approbation because I speak from opportunities of information which cannot deceive me and which furnish satisfactory proof of your title to public regard."

On the relations of Washington and Hamilton, Bancroft writes: "While the weightiest testimony that has ever been borne to the ability of Hamilton is by Washington, there never fell from Hamilton's pen during the lifetime of the latter one line which adequately expressed the character of Washington,

¹ Coleman, 64.

² Washington, xi. 16.

or gave proof that he had had the patience to verify the immense power that lay concealed beneath the uniform moderation and method of his chief." ¹

There is some ground for the blame on Hamilton implied in this passage, but it seems to be exaggerated. In reply to Washington's letter above, Hamilton wrote: "Whatsoever may be my destination hereafter, I entreat you to be persuaded (not the less from my having been sparing in professions) that I shall never cease to render a just tribute to those eminent and excellent qualities which have been already productive of so many blessings to your country; that you will always have my fervent wishes for your public and personal felicity, and that it will be my pride to cultivate a continuance of that esteem, regard, and friendship of which you do me the honour to assure me." ²

The evidence seems conclusive of good understanding and high esteem between the two men after 1790. Hamilton adopted the habit of signing himself, in writing to Washington, "With sincere respect and affectionate attachment," which is such a selected expression that it must be taken as signifying more than any of the ordinary formulas. Still it is true that the record contains no evidence that he appreciated Washington. The things which he said about him were rather expressions of the usefulness of Washington to himself. When Washington died he wrote: "He was an *Ægis* very essential to me;" ³ and to Mrs. Washington: "There can be

¹ History, x. 410.

² Works, viii. 335.

³ Ibid., 538.

few who equally with me participate in the loss you deplore. In expressing this sentiment, I may, without impropriety, allude to the numerous and distinguished marks of confidence and friendship of which you have yourself been a witness; but I cannot say in how many ways the continuance of that confidence and friendship was necessary to me in future relations.”¹

Gouverneur Morris wrote extended comments on Hamilton's career and character in his diary: “One marked trait of his character was the pertinacious adherence to opinions he had once formed. . . . The extent of the United States led him to fear a defect of national sentiment. . . . He heartily assented, nevertheless, to the Constitution, because he considered it as a band which might hold us together for some time, and he knew that national sentiment is the offspring of national existence. . . . He was of that kind of man which may most safely be trusted, for he was more covetous of glory than of wealth or power; but he was of all men the most indiscreet. He knew that a limited monarchy, even if established, could not preserve itself in this country. . . . He very well knew that no monarchy whatever could be established but by the mob. . . . He never failed on every occasion to advocate the excellence of, and avow his attachment to, monarchical government. . . . He was indiscreet, vain, and opinionated. . . . Our poor friend Hamilton bestrode his hobby to the great annoyance of his friends, and not without injury to

¹ Works, viii. 541.

himself. More a theoretic than a practical man, he was not sufficiently convinced that a system may be good in itself, and bad in relation to particular circumstances." ¹

J. Q. Adams said of him that "the characteristics of his mind and conduct" were that they were "indirect and hesitating," ²—an exceedingly incorrect judgment, unless we have entirely failed to understand the record.

Madison, having outlived the fiercer passions of their early warfare, wrote of him, in 1831: "That he possessed intellectual powers of the first order, and the moral qualifications of integrity and honour in a captivating degree, has been decreed to him by a suffrage now universal. If his theory of government deviated from the republican standard, he had the candour to avow it, and the greater merit of co-operating faithfully in maturing and supporting a system which was not his choice." ³ The Duc de Liancourt recorded of him that he had firmness and boldness of character, with fine manners. His disinterestedness is universally admitted. He had used none of the chances which his position in the treasury gave him. His professional charges were moderate. "Mr. Hamilton is one of the first men of America, at least of those whom I have yet seen. He has breadth of

¹ Morris's *Morris*, ii. 456, 474, 523. He said so, however. "A government must be fitted to a nation as much as a coat to the individual; and consequently, what may be good at Philadelphia may be bad at Paris, and ridiculous at Petersburg." (*To Lafayette*, 1799; *Works*, viii. 522.)

² *Diary*, ix. 350.

³ *Madison's Letters*, iv. 176.

mind, and even genius, clearness in his ideas, facility in their expression, information on all points, cheerfulness, excellence of character, and much amiability. I believe that even this eulogy is not adequate to his merit.”¹

Sullivan writes of him :² “ He was under middle size, thin in person, but remarkably erect and dignified in his deportment. His hair was turned back from his forehead, powdered, and collected in a club behind. His complexion was exceedingly fair, and varying from this only by the almost feminine rosi-ness of his cheeks. His might be considered, as to figure and colour, an uncommonly handsome face. When at rest, it had rather a severe and thoughtful expression, but when engaged in conversation, it easily assumed an attractive smile. When he entered a room it was apparent, from the respectful attention of the company, that he was a distinguished person. His appearance and deportment accorded with the dignified distinction to which he had attained in public estimation. . . . The eloquence of Hamilton was persuasive and commanding, the more so as he had no guide but the impulse of a great and rich mind, he having had little opportunity to be trained at the bar or in popular assemblies. Those who could speak of his manner from the best opportunities to observe him in public and private, concurred in pronouncing him to be a frank, amiable, high-minded, open-hearted gentleman. He was capable of inspiring the most af-

¹ Liancourt, iii. 260; vii. 149.

² Public Men, 260.

fectionate attachment, but he could make those whom he opposed fear and hate him cordially."

Bancroft¹ sums up his judgment upon Hamilton, that he was fond of authority; had creative power; had in his nature nothing mean or low; was disinterested; had a somewhat mean opinion of his fellow-men, therefore lacked sympathy with the masses and was unfit to lead a party. He thinks that he never understood or appreciated Washington. "He had a good heart, but with it the pride and the natural arrogance of youth, combined with an almost overweening consciousness of his powers, so that he was ready to find fault with the administration of others, and to believe that things might have gone better if the direction had rested with himself. Bold in the avowal of his own opinions, he was fearless to provoke, and prompt to combat opposition. It was not his habit to repine over lost opportunities. His nature inclined him rather to prevent what seemed to him coming evils by timely action."

The previous writer who has most nearly adopted that view of the key to Hamilton's career which is presented in this book is Hildreth:² "Much less of a scholar or a speculatist than either Jefferson or Adams, but a very sagacious observer of mankind, and possessed of practical talents of the highest order, Hamilton's theory of government seems to have been almost entirely founded on what had passed under his own observation during the war of the Revolution and subsequently, previous to the

¹ History, x. 409.

² History, iv. 296.

adoption of the new Constitution. As Washington's aide-de-camp, and as a member of the Continental Congress after the peace, he had become very strongly impressed with the impossibility of duly providing for the public good, especially in times of war and danger, except by a government invested with ample powers, and possessing means for putting those powers into vigorous exercise."

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ROBERT FULTON

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ROBERT FULTON.

I.

OLD LEGENDS. — STEAM IN EARLIER TIMES. —
JAMES WATT.

ROBERT FULTON has often, if not generally, been assumed to have been the inventor of the steamboat, as Watt is generally supposed to be the inventor of the steam-engine, which constitutes its motive apparatus. But this notion is quite incorrect. The invention of the steam-engine and that of the steamboat alike are the results of the inventive genius, not of any one man or of any dozen men, but have been the outcome of the inventive powers of the human race, exerted at intervals throughout the whole period of recorded history. An invention is usually, or is at least assumed to be, the product of the genius of some great mechanic, acting, as did the genii of old, by a single effort of the mysterious power. In this sense of the word, the steam-engine was never invented; rather it is the culmination of a long series of inventions of detail, and of improvements upon the earliest crude conceptions, and is the product of growth in a definite direction, and toward a now well-defined end. But while Fulton was not the inventor of the steamboat, and while James Watt was not the

inventor of the steam-engine, in a proper sense, it is the unquestionable fact that the latter was the first to secure a general introduction of the machine into practical use ; and the former was the first to make the steamboat a commercial success, and to make its ultimate and permanent employment for marine transportation sure. As an inventor, Fulton accomplished far less than Watt ; in fact, he did comparatively little in this realm of intellect. Watt invented many improvements of the steam-engine, and left it in vastly better form than when he found it, as it came from the hands of his predecessors, Newcomen and Calley. He gave the already well-shaped machine the separate condenser, the steam-jacket, the double-acting form, the rotative type, the expansive system, the governor, and the "engineer's stethoscope," — the indicator. Fulton did nothing to modify the engine, or to improve the steamboat even. He simply took the products of the genius of other mechanics, and set them at work, in combination, and then applied the already known steamboat, in his more satisfactorily proportioned form, to a variety of useful purposes, and with final success. It is this which constitutes Fulton's claim upon the gratitude and the remembrance of the nations. And it is quite enough.

The knowledge of the expansive power of steam was of earlier date than the Christian era ; forms of steam-engine antedated Watt by two thousand years ; the modern type of steam-engine was the invention of Newcomen rather than of Watt, and preceded that famous improver by nearly a century ; the steamboat

was said to have been constructed by several inventors long before the world witnessed the birth of Fulton ; other inventors had built and successfully operated steamboats with paddles, other boats with wheels, steam-vessels with screws, long before Fulton entered upon his great and glorious career. The simple fact is, therefore, as already indicated, that, like all really great and important inventions, these were the final fruition of minute germs of invention in earlier centuries, growing and gaining, century by century, throughout long periods of time. The famous inventor is usually he who in the end brings into full bearing the hitherto unknown and unnoticed invention, — he who at last makes it useful to mankind. This last was the mission of Fulton ; and it is this which has entitled him to all the credit as an engineer, and all the fame, which has been indisputably his.

Before taking up our study of the life of Fulton, and of its magnificent results, as already exhibited after less than a century has passed, it will be both interesting and profitable to review the past, and learn, as well as history permits, the details of that growth which has led us finally to such wonderful fruition. In doing so, we will follow the thread of the narrative as it has already been given by the author in a more formal treatise.¹

A rapid summary of the facts, and a study of their relations to our subject, beginning with earliest history, and following this development up to the time of Fulton, will enable us to more intelligently and

¹ History of the Growth of the Steam-Engine, by R. H. Thurston. New York. D. Appleton & Co. 1878.

satisfactorily weigh our debt to that great man, and measure the obligation of the world, and especially of his own country.

The knowledge of the latent power of steam probably antedates history; rude forms of apparatus for utilizing that force are described in the earliest of ancient works; yet the invention of a steam-engine, in the proper sense of that term, only took place within two centuries, and the steam-engine of the present time has been the outcome of a succession of inventions and improvements which are only now culminating in the production of an engine which science indicates to be that which must be regarded as the final form of that remarkable motor. The principles of its construction, and especially those of its operation, are now well understood, and all its faults and wastes of either heat-energy or mechanical power are known and measured, their causes ascertained, and, in a general way, their methods of remedy determined. We are now gradually overcoming the practical obstacles to the reduction of the machine to the best possible proportions, and its plan to the ideal form. The history of the steam-engine is exceedingly interesting, and to the philosopher especially so, as illustrating the fact that "great inventions are rarely the work of any one mind," but are "either an aggregation of minor inventions or the final step of a progression;" "not a creation, but a growth, — as truly so as that of the trees in the forest."¹

¹ History of the Growth of the Steam-Engine, by R. H. Thurston. New York. D. Appleton & Co. (International Series.)

The first account of what has been termed the germ of the steam-engine appears in the works of Hero the Younger, who lived, as is supposed, in the second century before Christ, at Alexandria, in Egypt. In his "Pneumatica" he describes a multitude of devices, some of them very ingenious, but mainly mere toys, in which the heat-energy of fire, or of the sun, is applied for transformation into mechanical power through the intermediary of steam. He shows several forms of fountain, now known as the Hero fountain; contrivances for opening temple doors by steam; musical instruments, — at least, so called, — and other such unimportant trifles. Amongst this collection of curious illustrations of the non-utilitarian character of the Greek civilization, is found a real steam-engine, such as is illustrated by the accompanying engraving.¹

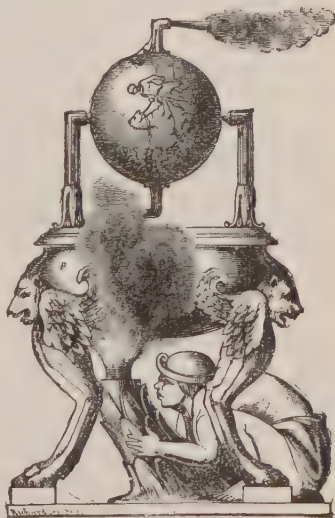


Fig. 1. — Hero's Steam-Engine.

The picture here given is a modern and highly

¹ Thurston's Manual of the Steam-Boiler, p. 2. New York J. Wiley & Sons. 1890.

ornamented reproduction of Hero's machine, which is earliest shown in Stuart's "History of the Steam-Engine," 1829, and reproduced by the author in later publications. Curiously enough, this little machine, which has often been reproduced, unwittingly, by modern inventors, and actually used with a fair degree of satisfaction, illustrates a form of engine which is "theoretically," ideally perfect. Its operation under the theoretically best conditions, assuming it made with similar perfection and to be free from friction-wastes, would give highest possible efficiency and economy in the use of steam. But this would involve its operation at inapproachable velocities and the impracticable condition of being frictionless; nevertheless, it is perfectly possible to secure such favourable conditions in practice as will make a fairly economical machine, when placed in comparison with the forms of engine which modern invention has produced. Its action is simple and easily seen. Steam is made in the boiler which forms its base, and passes up through one or both of the hollow supporting columns or pipes, entering the axis of the whirling globe, filling it at a pressure determined by the rate at which steam is formed; and it is then expanded, finally issuing from the projecting arms or ajutages, and by its reaction turning the globe with considerable force and at high speed. Modern engines of this construction have been used quite successfully in driving factories and mills, and have been found to use no very extravagant amount of steam; but have finally been thrown out, on account, mainly,

of their cost for repairs ; the whirling arms being usually rapidly cut away by their swift passage through the steam-laden atmosphere in which they necessarily work. Ideally, the machine is an "expansion-engine" of the most perfect type.

From the days of Hero, however, nothing more is heard of the use of steam in any apparatus, nor is any machine produced capable of doing work in that manner. All through the early and the middle ages the force of confined steam and other vapours is evidently known, but no attempt that may be regarded as at all serious was made to utilize its latent power. Little "æolipiles" — vessels in which steam was produced and from which it issued in a jet which was sometimes employed to cause an induced current of air with which to blow the fire — were the only steam-engines, until, about the sixteenth century, it seems to have been suspected by one or another of the wool-gathering philosophers and the plodding mechanics of those days that steam had a somewhat higher mission. At about the end of that century and the beginning of the seventeenth, we find records of various contrivances, in the application of steam to useful purposes, which indicate that at last the minds of men were awakening to the consideration of the problem of the centuries. These inventions, if it can be said, fairly, that they were inventions, were commonly directed to the application of the force of confined steam to the raising of water through considerable heights, as in the draining of mines, or in furnishing a house-supply. Da Porta,

in 1601, De Caus in 1605 to 1615, and Branca, 1629, were among those who began to suggest, rather than to practise, the application of steam to useful work. The first two pictured contrivances for raising water, which were, however, but distant imitations of the notions of Hero ; while the last-named gave drawings, with some elaboration, of machines, by the action of steam-jets, usually impinging against vanes, driving mills and metallurgical machinery.

At about the latter time, the second Marquis of Worcester began his now famous career of invention, and probably as early as 1630 had devised what is known as his "engine" or his "fire-engine;" a machine, however, which was really but the Hero fountain on an enlarged and somewhat more practically available scale, and in better form. He did apply it to its purpose of raising water, though ; and this constitutes for him a legitimate and sufficient claim for remembrance and honour. He was the first to use steam — so far as is positively known — for industrial ends. It is known that he was engaged in erecting an engine at least as early as 1648, but his patents were only issued in 1663. It seems very certain that the marquis built two or more of these "fire-engines;" but their exact form is unknown, and it is only certain that he profited nothing by his ingenuity and enterprise. He finally died unsuccessful and in comparative poverty. His widow was as unhappy and unfortunate as her husband, and died in 1681 without having gained a foothold for her spouse's invention.

The death of this truly great man, inventor and statesman as he was, in the highest sense, did not, however, put an end to the progress which he had initiated. His friend and successor in this work, Sir Samuel Morland, made himself thoroughly familiar with the subject, secured opportunities to construct a number of such engines, and became so well informed as to their capabilities that he published an account of the apparatus, in which paper he introduced tables of the number and sizes of the working cylinders required to raise given quantities of water to specified heights in stated times ; thus, for the first time, constructing the now usual specifications for use in determining the requirements of purchasers. Yet neither the machines of Worcester nor those of Morland became generally used. These men were in advance of their time ; and it was only when, some years later, Captain Savery, — a man of talent both as an engineer and a man of business, whose character united all the elements of success in practical operations, — took up the task that it became in any degree a commercial success. Very little is known in detail of the experiments or of the constructions of the Marquis of Worcester ; and that absorbing romance by George Macdonald, “ St. George and St. Michael,” may perhaps be taken as quite as authoritative as any biography, so far as such minor details are concerned ; but the work of Savery, nearly a half-century later, came within the range of modern history, and is well understood.

When Savery took up the new problem, at the

opening of the eighteenth century, the mines of Great Britain had become, in many instances, so deep that the labour of freeing them from water was an enormously difficult and expensive task with the means and apparatus at the disposition of the mine-owners. They had rude forms of pump worked by horse-power almost exclusively ; and in the older and more extensive mines, hundreds of horses were sometimes kept at work, and the profits of mining were becoming daily less and less, and seemed likely to be soon extinguished by this great tax on production. Worcester and his contemporaries had seen this threatening outlook, and were apprehensive that Britain might soon lose that supremacy, industrially, which she had, in consequence of her success in mining, up to that time so firmly held. They had, in many cases, looked to steam or some as yet undiscovered motor to do this work more cheaply than horse-power ; but even Worcester and Morland failed to make practically useful application of the new "fire-engine." Savery, familiar with the business of mining, a mechanic by experience and practice as well as by nature, not only saw the opportunity, but saw also a way to secure a prize. He made a workmanlike reproduction of the Worcester machine, giving it a form capable of immediate and effective application to the intended purpose. This is his device, as built by him for mines, and as described by him to the Royal Society, then already (1698) formed and in operation, and to the public through his little book, "The Miner's Friend ; or, A Description of an Engine to raise Water by

Fire described, and the Manner of fixing it in Mines, with an Account of the several Uses it is applicable to, and an Answer to the Objections against it. Printed in London in 1702 for S. Crouch." It was

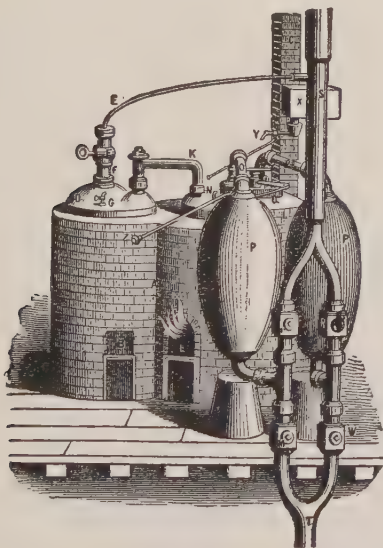


Fig. 2. — Savery's Engine, A. D. 1702.

distributed among the proprietors and managers of mines, who were then finding the flow of water at depths so great as, in some cases, to bar further progress.

The engraving of the engine was reproduced, with the description, in Harris's "*Lexicon Technicum*,"

1704; in Switzer's "Hydrostatics," 1729; and in Desagulier's "Experimental Philosophy," 1744.¹

In Figure 2, *LL* is the boiler in which steam is raised, and through the pipes *OO* it is alternately let into the vessels *PP*. Suppose it to pass into the left-hand vessel first. The valve *M* being closed, and *r* being opened, the water contained in *P* is driven out and up the pipe *S* to the desired height, where it is discharged. The valve *r* is then closed, and the valve in the pipe *O*; the valve *M* is next opened, and condensing water is turned upon the exterior of *P* by the cock *Y*, leading water from the cistern *X*. As the steam contained in *P* is condensed, forming a vacuum there, a fresh charge of water is driven by atmospheric pressure up the pipe *T*. Meantime, steam from the boiler has been let into the right-hand vessel *Pp*, the cock *IV* having been first closed, and *R* opened. The charge of water is driven out through the lower pipe and the cock *R*, and up the pipe *S* as before, while the other vessel is refilling preparatory to acting in its turn. The two vessels are thus alternately charged and discharged, as long as is necessary.

Savery's method of supplying his boiler with water was as follows:—

The small boiler, *D*, is filled with water from any convenient source, as from the stand-pipe, *S*. A fire is then built under it, and when the pressure of steam in *D* becomes greater than in the main boiler, *L*, a communication is opened between their lower ends,

¹ Our illustration is from Thurston's "History of the Steam-Engine," p. 37. New York. D. Appleton & Co.

and the water passes, under pressure, from the smaller to the larger boiler, which is thus "fed" without interrupting the work. *G* and *N* are *gauge-cocks*, by which the height of water in the boilers is determined ; they were first adopted by Savery.

" Here we find, therefore, the first really practicable and commercially valuable steam-engine. Thomas Savery is entitled to the credit of having been the first to introduce a machine in which the power of heat, acting through the medium of steam, was rendered generally useful. It will be noticed that Savery, like the Marquis of Worcester, used a boiler separate from the water-reservoir. He added to the 'water-commanding engine' of the marquis the system of *surface-condensation*, by which he was enabled to charge his vessels when it became necessary to refill them ; and added, also, the secondary boiler, which enabled him to supply the working-boiler with water without interrupting its action. The machine was thus made capable of working uninterruptedly for a period of time only limited by its own decay. Savery never fitted his boilers with safety-valves, although it was done later by others ; and in deep mines he was compelled to make use of higher pressures than his rudely-constructed boilers could safely bear." ¹

In this case, we find an illustration of a very common fact in the history of inventions : The originator of this machine was probably, perhaps undoubtedly,

¹ Thurston's History of the Steam-Engine, p. 38. See, also, Thurston's Manual of Steam-Boilers. New York. J. Wiley & Sons.

the second Marquis of Worcester ; but the practical constructor, and the finally successful inventor, was Savery, the man who combined inventive with constructive power and business ability in that way which is almost always essential to complete success. Savery was more an "exploiter" of this invention than its author. Yet he did introduce some excellent modifications of details, and the various practically useful minutiae which so often are the prime requisite to commercially satisfactory work. A glance at the drawings of the machine, however, and a comparison with the modern steam-engine will show that this was not only not a steam-engine in the usual sense, a train of mechanism, but that it belongs to an entirely different class of apparatus. A real steam-engine was only invented after experience with the Savery apparatus had shown it to be a wasteful, dangerous, and comparatively rude contrivance for the application of steam to the work of raising water. It was wasteful in consequence of the fact that it applied the pressure of the steam at the surface of the cold water to be raised, and was thus certain to condense much more than it could usefully employ ; it was dangerous in consequence of the fact that it must necessarily use pressures exceeding those of head of water to be encountered, and higher than the mechanics of that time could make their boilers and "forcing-vessels" capable of safely withstanding. More than one explosion actually occurred.

It is here that we meet with perhaps the greatest of all the inventors of the steam-engine, — the man who

for the first time produced a steam-engine of the modern type ; a train of mechanism, in which a steam-engine was constructed and applied to another machine for the purpose of acting as its "prime mover," — an engine operating a pump. This greatest of the whole line of inventors, considered from the point of view of the historian of the engine and the student of its philosophy, was, not Watt, but Newcomen, or perhaps more precisely, two mechanics, Thomas Newcomen and John Calley or Cawley, who patented the new engine, 1705, soon after Savery's machine had come to be fairly well known. Savery also controlled some of the patents incorporated in the new arrangement, and took an interest with its inventors, and shared their profits.

Newcomen's engine, by employing steam of low, hardly more than atmospheric, pressure, evaded the dangers inherent in that of Savery, and by applying the steam to move a piston in a cylinder apart from the pump, secured comparatively economical performance. It promptly displaced the older and ruder contrivance, and came into use all over Europe, as constructed later by Smeaton and other great engineers of the day. As finally given form by these able men, it is seen in the next engraving, which shows the machine as built by Smeaton in 1774, for the Long Benton colliery.¹ The boiler is not shown in the sketch. Figure 3 illustrates its characteristic features.²

¹ History of the Steam-Engine, p. 65.

² A fac-simile of a sketch in Galloway's "On the Steam-Engine," etc.

The steam is led to the engine through the pipe, *C*, and is regulated by turning the cock in the receiver, *D*, which connects with the steam-cylinder by the pipe, *E*, which latter pipe rises a little way above the

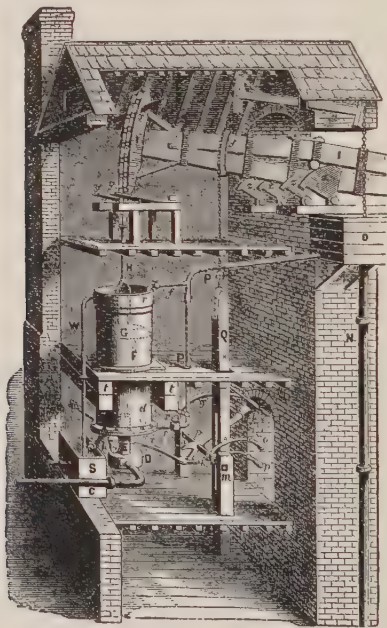


Fig. 3. — Smeaton's Newcomen Engine.

bottom of the cylinder, *F*, in order that it may not drain off the injection-water into the steam-pipe and receiver.

The steam-cylinder, about 10 ft. (3 m.) in length, is fitted with a carefully-made piston, *G*, having

a flanch rising 4 or 5 inches (.1 to 1.25 m.) and extending completely around its circumference, and nearly in contact with the interior surface of the cylinder. Between this flanch and the cylinder is driven a "packing" of oakum, which is held in place by weights; this prevents the leakage of air, water, or steam past the piston, as it rises and falls in the cylinder at each stroke of the engine. The chain and piston-rod connect the piston to the beam *II*. The arch-heads at each end of the beam keep the chains of the piston-rod and the pump-rods perpendicular and in line.

A "jack-head" pump, *N*, is driven by a small beam deriving its motion from the plug-rod at *g*, raises the water required for condensing the steam, and keeps the cistern, *O*, supplied. This "jack-head" cistern is sufficiently elevated to give the water entering the cylinder the velocity requisite to secure prompt condensation. A waste-pipe carries away any surplus water. The injection-water is led from the cistern by the pipe, *PP*, which is two or three inches in diameter; and the flow of water is regulated by the injection-cock, *r*. The cap at the end, *d*, is pierced with several holes, and the stream thus divided rises in jets when admitted, and, striking the lower side of the piston, the spray thus produced very rapidly condenses the steam, and produces a vacuum beneath the piston. The valve, *e*, on the upper end of the injection-pipe, is a check-valve to prevent leakage into the engine when the latter is not in operation. The little pipe, *f*, supplies water to the

upper side of the piston, and, keeping it flooded, prevents the entrance of air when the packing is not perfectly tight.

The "working-plug," or plug-rod, *Q*, is a piece of timber slit vertically, and carrying pins which engage the handles of the valves, opening and closing them at the proper times. The steam-cock, or regulator, has a handle, *h*, by which it is moved. The iron rod, *i i*, or spanner, gives motion to the handle, *h*.

The vibrating lever, *k l*, called the *Y* or the "tumbling bob," moves on the pins, *m n*, and is worked by the levers, *o p*, which in turn are moved by the plug-tree. When *o* is depressed, the loaded end, *k*, is given the position seen in the sketch, and the leg, *l* of the *Y* strikes the spanner, *i i*, and, opening the steam-valve, the piston at once rises as steam enters the cylinder, until another pin on the plug-rod raises the piece, *P*, and closes the regulator again. The lever, *q r*, connects with the injection-cock, and is moved, when, as the piston rises, the end, *q*, is struck by a pin on the plug-rod, and the cock is opened and a vacuum produced. The cock is closed on the descent of the plug-tree with the piston. An education-pipe, *R*, fitted with a clock, conveys away the water in the cylinder at the end of each down-stroke; the water thus removed is collected in the hot-well, *S*, and is used as feed-water for the boiler, to which it is conveyed by the pipe *T*. At each down-stroke, while the water passes out through *R*, the air which may have collected in the cylinder is driven out through the "snifting-valve," *s*. The steam-cylinder

is supported on strong beams, *tt*; it has around its upper edge a guard, *v*, of lead, which prevents the overflow of the water on the top of the piston. The excess of this water flows away to the hot-well through the pipe *W*.

Catch-pins, *x*, are provided, to prevent the beam descending too far should the engine make too long a stroke; two wooden springs, *y y*, receive the blow. The great beam is carried on sectors, *z z*, to diminish losses by friction.

Comparing this machine with that of Savery, it is seen that the dangers of the form previously in use are here evaded, while economy is enormously promoted by the change. As it is here practicable to employ steam of but slightly more than atmospheric pressure, no danger of explosions consequent upon high pressure in regular working is encountered. By the separation of the pump from the working cylinder, and the application of the steam to a piston, instead of to a surface of cold water, the immense condensation to which it was subjected in the Savery engine is largely reduced. Thus both safety and economy are gained. It is therefore not at all surprising that this new invention should have come immediately into general use, and should have promptly become the standard form of the steam-engine for its time. It was built not only for all the principal mines of Great Britain, but also for those of the continent of Europe; and long after the death of its inventors the genius of that greatest of engineers of his time, Smeaton, continued to sustain it

and to keep it in use, even as a rival of the most famous of this whole line of inventions, — that of James Watt, who now comes upon the scene. Smeaton himself built a large number of these engines; and at the time of his death, about the end of the eighteenth century, there were not less than a hundred Newcomen engines in Great Britain, and many elsewhere in Europe.

Notwithstanding the great advantage possessed by this engine when compared with that of Savery, it was, compared with our modern standards, a very wasteful machine. Its wastes occurred through the same causes precisely as those operating in the case of its predecessor, and though in less degree, still to a very serious extent. In the operation of the pump-end it had become efficient; but the steam-cylinder was both a power-producing mechanism and a condenser of steam, — for the condensation of the one working-charge was produced by the introduction of water, cooling the cylinder itself, as well as the steam which it contained. This cooling compelled a subsequent heating by the next charge of steam, and consequent condensation and waste proportional to the quantity thus demanded, — a very large fraction of all entering the engine. Its “duty” was about six millions of pounds of water raised one foot high by a bushel of coals, — the usual measure of efficiency of engines in those days. This was but about a quarter of that obtained a little later by Watt, and but a tenth of that secured ultimately by his best engines. It was about five per cent of what is

to-day considered the maximum duty of the modern engine of the best type.

It is to James Watt that we owe the latest and crowning improvements of the steam-engine, as we know it to-day. A half-century after Newcomen he found among the collections of the then and still celebrated University of Glasgow—always famous for its success in the promotion of the physical sciences—a model of the still-used engine of that earlier and no less deserving inventor. He was, in the course of his duty as the instrument-maker to the college, called upon to put this little machine in repair; and having done so, he became interested in studying its working. He was surprised to find that its steam-cylinder absorbed, each stroke, four times as much steam as its measurement would indicate to be possible, three fourths of that entering being evidently condensed, and only one fourth doing work. This waste of seventy-five per cent of all the steam supplied, and of a similar proportion of the fuel used in generating it, and of the money demanded for the operation of the engine, seemed so extraordinary that the active mind of the great inventor was at once applied to remedy so singular and immense a loss.

Watt saw at once that the remedy must consist in some way of reducing this liquefaction of the steam by, as he said, “keeping the steam-cylinder as hot as the steam entering it.” This he did by first effecting the condensation of the steam in a separate condenser, instead of in the cylinder; then surrounding the cylinder itself by a “steam-jacket,” in which he

kept steam at boiler-pressure, thus preventing any cooling off of the engine during the period of its operation. In his patent of 1769, he says, —

“My method of lessening the consumption of steam, and consequently fuel, in fire-engines, consists in the following principles : —

“1st. That the vessel in which the powers of steam are to be employed to work the engine — which is called ‘the cylinder’ in common fire-engines, and which I call ‘the steam-vessel’ — must, during the whole time that the engine is at work, be kept as hot as the steam which enters it : first, by inclosing it in a case of wood, or any other materials that transmit heat slowly ; secondly, by surrounding it with steam or other heated bodies ; and thirdly, by suffering neither water nor other substances colder than the steam to enter or touch it during that time.

“2dly. In engines that are to be worked, wholly or partially, by condensation of steam, the steam is to be condensed in vessels distinct from the steam-vessel or cylinder, though occasionally communicating with them. These vessels I call *condensers* ; and while the engines are working, these condensers ought at least to be kept as cold as the air in the neighbourhood of the engines, by application of water or other cold bodies.

“3dly. Whatever air or other elastic vapour is not condensed by the cold of the condenser, and may impede the working of the engine, is to be drawn out of the steam-vessels or condensers by means of pumps, wrought by the engines themselves, or otherwise.

“4thly. I intend in many cases to employ the expansive force of steam to press on the pistons, or whatever may be used instead of them, in the same manner as the pressure of the atmosphere is now employed in common fire-engines. In cases where cold water cannot be had in plenty, the engines may be wrought by this force of steam only, by discharging the steam into the open air after it has done its office.”

Thus he converted the “atmospheric engine” of Newcomen into the steam-engine of James Watt. His separate condenser, with its air-pump; his covered cylinder, permitting the contact of hot steam instead of cold air with the top of the piston; his steam-jacket, and his generally improved construction, at once gave him a machine which was capable of doing four times as much work, on the same expenditure of money for fuel, as the older engine. A capitalist, Matthew Boulton, joined with Watt in the formation of a company for the manufacture of the new engine; and the firm of Boulton and Watt became promptly known all over the civilized world, and is likely to be remembered as long as the steam-engine endures. This partnership was formed in 1769, and from that time on, for years, Watt found employment for all his genius in the improvement and adaptation of the engine for its countless purposes.

In 1781 Watt invented the now familiar “double-acting” engine, applied to turning a shaft, and to the driving of machinery in factories and mills. His patent included, —

(1) The expansion of steam, and six methods of

applying the principle and of equalizing the expansive power.

(2) The double-acting steam-engine, in which the steam acts on each side the piston alternately, the opposite side being in communication with the condenser.

(3) The double or coupled steam-engine, — two engines capable of working together, or independently, as may be desired.

(4) The use of a rack on the piston-rod, working into a sector on the end of the beam, thus securing a perfect rectilinear motion of the rod.

(5) A rotary engine, or "steam-wheel."

The efficiency to be secured by the expansion of steam had long been known to Watt, and he had conceived the idea of economizing some of that power, the waste of which was so plainly indicated by the violent rushing of the exhaust-steam into the condenser, as early as 1769. This was described in a letter to Dr. Small, of Birmingham, in May of that year; and the earlier Soho engines were, as Watt said, made with cylinders "double the size wanted, and cut off the steam at half-stroke." But though "this was a great saving of steam, so long as the valves remained as at first," the builders were so constantly annoyed by alterations of the valves by proprietors and their engineers that they finally gave up that method of working, hoping ultimately to be able to resume it when workmen of greater intelligence and reliability could be found. The patent was issued July 17, 1782.¹

¹ History of the Steam-Engine, p. 105.

During the following two years or more, Watt was engaged in bringing out and perfecting a number of the minor inventions, the accessories of the engine, — as the governor, the counter, the numerous little details of construction and of valve mechanism ; finally, in 1784, he patented a group which included these, and the steam-hammer, and the locomotive. The steam-engine had now taken its distinctively modern form, and may be said to have been substantially completed ; and Watt's work was mainly done. The form of the engine as now built by the firm is seen in the next engraving, which is a reproduction of his own drawings made at that date.

In Figure 4, *C* is the steam-cylinder, *P* the piston, connected to the beam by the link, *g*, and guided by the parallel motion *g d c*. At the opposite end of the beam a connecting-rod, *O*, connects with the crank and fly-wheel shaft. *R* is the rod of the air-pump, by means of which the condenser is kept from being flooded by the water used for condensation, which water-supply is regulated by an "injection-handle," *E*. A pump-rod, *N*, leads down from the beam to the cold-water pump, by which water is raised from the well or other source to supply the needed injection-water. The air-pump rod also serves as a "plug-rod," to work the valves, the pins at *m* and *R* striking the lever, *m*, at either end of the stroke. When the piston reaches the top of the cylinder, the lever, *m*, is raised, opening the steam-valve, *B*, at the top, and the exhaust-valve, *E*, at the bottom, and at the same time closing the exhaust at the top and the steam at the

bottom. When the entrance of steam at the top and the removal of steam-pressure below the piston has driven the piston to the bottom, the pin, *K*, strikes the lever, *m*, opening the steam and closing the exhaust valve at the bottom, and similarly reversing the position of the valves at the top. The position of the valves is changed in this manner with every reversal of the motion of the piston.

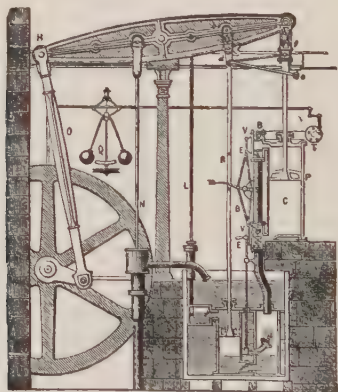


Fig. 4. — Boulton and Watt's Double-Acting Engine, 1784.

The earliest engines of the kind, and of any considerable size, were those set up in the Albion Mills, near Blackfriars' Bridge, London, in 1786, and destroyed when the mills burned in 1791. These were a pair of engines, of fifty horse-power each, and geared to drive twenty pairs of stones, making fine flour and meal. Previous to the erection of this mill the power in all such establishments had always been derived from wind-mills and water-wheels.

At the time of Watt's death, 1819, the steam-engine had thus been brought into its now familiar and standard form, and had been prepared, by its various modifications of detail, to do its work in all now usual directions. The engine itself was substantially complete in form. It had been given such construction as would permit the expansive use of the motor-fluid, and thus the attainment of high economy; the wastes had been reduced to a comparatively small amount; and the applications of the machine to the raising of water, the driving of mills, the impulsion of railway-carriages, and of vessels, had been proposed and, tentatively, begun in all directions. It was now possible to begin a new line of engineering development, — that of application to all the purposes of modern life. It is this which has been the distinctive industrial characteristic of the nineteenth century. As we have seen, Watt may not claim the honour of being the inventor of the steam-engine; but he is unquestionably entitled to that of having been the most fruitful of inventors, and the man to whom most credit is due for having applied the machine to its myriad purposes, making it the universal servant and friend of mankind. It is this which entitles him to the famous eulogy in his epitaph, as the inventor who, "directing the force of an original genius, early exercised in philosophic research, to the improvement of the steam-engine, enlarged the resources of his country, increased the power of man, and rose to an illustrious place among the most eminent followers of science, and the real benefactors of the world."

II.

EARLY EXPERIMENTS IN STEAM-NAVIGATION.

EVEN before the time of Watt, the possibility of the application of the motive power of steam to the impulsion of vessels had been, by many inventors, believed to be unquestionable; and a number of attempts to so apply it had been made. But so rude were the machines of those earlier times, and so impossible was it to secure good construction of even the simplest mechanism, that no permanent success had been achieved by any one of these enthusiastic schemers. As early as the thirteenth century, Roger Bacon, one of the founders of the modern system of experimental philosophy, wrote, "I will now mention some wonderful works of art and nature in which there is nothing of magic, and which magic could not perform. Instruments may be made by which the largest ships, with only one man guiding them, will be carried with greater velocity, than if they were full of sailors." ¹

As soon as the steam-engine took practically available form, it was proposed to use it for this purpose; and Papin, in 1690, suggested the use of his piston-engine in this direction. He actually constructed a

¹ History of the Steam-Engine, p. 224.

steamboat, in 1707, on the river Fulda, at Cassell, using his pumping-engine to raise water ; which water in turn was applied to a water-wheel, and drove thus a set of paddle-wheels on the same shaft. The contrivance, crude as it was, was found capable of doing its work, and the boat might have been the pioneer in a commercially successful use of steam for navigation, had it not been promptly destroyed by the ignorant and superstitious boatmen of the neighbourhood, who thought it the work of the Evil One. Papin, disappointed and discouraged, fled to England, and there, becoming well known as a fellow of the Royal Society, resided until his death, in poverty, about 1712.

A little later, 1736, Jonathan Hulls, of whom nothing seems to be otherwise known, patented a steamboat, of which he gave a very imperfect description, but which he is said to have constructed and successfully tried, and an account of which he published in pamphlet form in 1737. Its frontispiece is a rude illustration of the proposed boat, and also gives some slight idea of the nature of the details of his machinery, which seems to have included some modification of the Newcomen engine. This has been reproduced in fac-simile in later works.¹

Bernouilli, in 1752, proposed the use of a screw as a propelling instrument. L'Abbé Gauthier, according to Figuier,² about the same time suggested the use of the steam-engine in navigation, driving paddle-wheels, and also that it should be used for operating the pumps, for raising the anchor, and ventilating the ves-

¹ History of the Steam-Engine, p. 226.

² Les Merveilles de la Science.

sel, and that the fire should, at the same time, be used for cooking. He designed to use the Newcomen engine.

Many other inventors were now studying the problem in different parts of the civilized world. Among these, none were as ingenious or as persistent or as successful as those of the then British colonies, later the United States of America. Among these was a group of New York and Pennsylvania mechanics, who, seemingly each more or less familiar with the work of the others, struggled on persistently, and finally successfully. A nucleus consisting of one of these men and his friends and coadjutors, became, ere long, the germ of the great movement which in the early part of the nineteenth century resulted in the final application of the powers of steam to the propulsion of steam-vessels, — first on the rivers of the United States and the harbours of Great Britain, then on all the oceans. The originator of this sudden movement in the United States seems to have been a man unknown to fame, and one of whom few records are preserved. Our own information, hitherto unpublished, comes from an indistinctly traced source ; but its facts have been fairly well verified by independent historical investigation.

William Henry was born in Chester County, Penn., in the year 1729. His father, John Henry, with his parents, and two brothers, — Robert and James, — emigrated to this country from the north of Ireland in or about the year 1719 or 1720.¹ The father of

¹ Robert and James Henry married sisters, named Mary Ann and Sarah Davis, who resided in Chester County. Rob-

James, Robert, and John was a native of Scotland, but for a short time previous to his coming to this country had resided in one of the northern counties of Ireland. Upon the arrival of the family in Pennsylvania they settled in Chester County, where, as before stated, the subject of our sketch was born. At an early age he became a resident of Lancaster, Penn., where he learned the business of gunsmith. After serving his apprenticeship he began business on his own account, and in a few years became the principal gunsmith in the province. During the Indian wars which desolated Pennsylvania from 1755 to 1760, he was appointed principal armourer of the troops then called into service, which position procured for him the honour of having his name given to a fort in Berks County constructed by the Proprietary Government, on the then frontier settlements, under the immediate supervision of Benjamin Franklin, to whom Mr. Henry was well known, and who appreciated his services in that eventful period.

In the year 1760 Mr. Henry went to England on business connected with his vocation, and there he remained for some time. Having a mechanical turn of mind, the inventions and the applications of steam by Watt being then much discussed, the idea of its application to the propelling of boats, vehicles, etc., so engrossed his mind that on his return to his

ert subsequently removed to Virginia; and from the circumstances of the two brothers having married the sisters, Mary Ann and Sarah Davis, it has been ascertained that the celebrated Patrick Henry was a descendant of this Robert Henry.

home in Lancaster he began the construction of a machine, the motive power of which was steam. In 1763 Mr. Henry completed the machine, which was attached to a boat with paddles, and with it he experimented on the Canastota River, near Lancaster; but the boat was by some accident sunk.¹

This was the first attempt that ever had been made to apply steam to the propelling of boats. Notwithstanding the ill luck that attended the first attempt in an undertaking of the practicability of which he had not the least doubt, he constructed a second model, with improvements on the first; and among the records of the Pennsylvania Philosophical Society is to be found a design, presented by him in 1782, of a machine, the motive power of which was steam. An intelligent German traveller named Shoepff, who travelled through the United States in 1783-1784, whilst staying for a time at Lancaster, became acquainted with Mr. Henry. He says: "I was shown a machine by Mr. Henry, intended for the propelling of boats, etc., 'but,' said Mr. Henry, 'I am doubtful whether such a machine would find favour with the public, as every one considers it impracticable to make a boat move against wind and tide;' but that such a boat *will* come into use, and navigate on the waters of the Ohio and Mississippi he had not the least doubt, though the time had not yet arrived of its being appreciated and applied." A sketch of the machine, with the boilers, etc., made by Mr.

¹ See Bowen's "Sketches," collected in Pennsylvania.

Henry in 1779, is said to be still in the possession of his heirs.

John Fitch (for whom his biographer claimed the honour of the invention of the application of steam to the propulsion of boats) was a frequent visitor at Mr. Henry's house, and according to the belief of his friends obtained from him the idea of the steamboat. Fulton, then a young lad, also visited Mr. Henry's to examine the paintings of Benjamin West; and the germ that subsequently ripened into the construction of the "Folly" was possibly due to those visits. Mr. Henry's decease occurred on the 15th of December, 1786.

William Henry, though unsuccessful with the experiments with his first boat on the Canastota River, thus very probably originated the idea of the steamboat at least five years before Fulton was born. The following extract¹ may throw some light on the subject : —

"Dec. 2d, 1785. At a special meeting of the Philosophical Society, John Fitch was personally presented to the members. Desirous of having the opinion of men of weight at that period, he consulted several, among whom was Mr. Henry, of Lancaster, 'who informed me,' says Fitch, 'that he was the first person who had thought of applying steam to vessels; that he had conversed with Mr. Paine, author of "Common Sense," and some time after, Mr. Henry, thinking more seriously of the matter,

¹ *Inventor's Guide*, by J. G. Moore.

was of the opinion that it might be perfected, and accordingly made some drafts, which he laid before the Philosophical Society.' ”

Fitch evidently made the first successful experiment in the propelling of boats by steam ; but William Henry has probably the honour of originating the idea, and building the first steamboat ever built in the United States. Fitch improved on Mr. Henry's model, and Fulton improved on both.

Thus a group of alert, intelligent, enterprising men, in this little town, far back among the then wilds of Pennsylvania, were all interested in the solution of a new problem. Of all these men, two — Fitch and Fulton — have since been known as the most successful among the inventors who took part in the introduction of steam navigation in the United States. At the same time the great mechanics of the country were preparing themselves to take their part in the work, and in 1775 the first steam-cylinder for a stationary steam-engine was cast in New York City, by the firm of Sharpe & Curtenius ;¹ while the application of the steam-engine to navigation was attempted in a rude way, since often tried and as often failing, by James Rumsey.

Rumsey's experiments began in 1774, and in 1786 he succeeded in driving a boat at the rate of four miles an hour against the current of the Potomac at Shepherdstown, Va., in presence of General Washington. His method of propulsion has often been reinvented since, and its adoption urged with that

¹ Rivington's Gazette, Feb. 16, 1775.

enthusiasm and persistence which is a peculiar characteristic of inventors.

Rumsey employed his engine to drive a great pump, which forced a stream of water aft, thus propelling the boat forward, as proposed earlier by Bernouilli.

Rumsey died of apoplexy while explaining some of his schemes before a London society a short time later, December 23, 1793, at the age of fifty years. A boat then in process of construction from his plans was afterward tried on the Thames, in 1793, and steamed at the rate of four miles an hour. The State of Kentucky in 1839 presented his son with a gold medal, commemorative of his father's services "in giving to the world the benefit of the steam-boat."¹ The first President of the United States certified his familiarity with this device, thus : —

I have seen the model of Mr. Rumsey's boat, constructed to work against the stream ; examined the powers upon which it acts ; been eye-witness to an actual experiment in running waters of some rapidity ; and give it as my opinion (although I had little faith before) that he has discovered the art of working boats by mechanism and small manual assistance against rapid currents ; that the discovery is of vast importance ; may be of greatest usefulness in our inland navigation ; and, if it succeeds, of which I have no doubt, the value of it is greatly enhanced by the simplicity of the work, which, when explained, may be executed by the most common mechanic.

¹ History of the Steam-Engine, p. 236.

Given under my hand and seal, in the town of Bath, county of Berkeley, in the State of Virginia, this 7th day of Sept., 1784.

GEORGE WASHINGTON.

John Fitch was an ingenious Connecticut mechanic. In April, 1785, as Fitch himself states, at Neshamony, Bucks County, Pa., he conceived the idea that a carriage might be driven by steam. After considering the subject a few days, his attention was led to the plan of using steam to propel vessels, and from that time to the day of his death he was a persistent advocate of the introduction of the steamboat. At this time, Fitch says, "I did not know that there was a steam-engine on the earth;" and he was somewhat disappointed when his friend, the Rev. Mr. Irwin, of Neshamony, showed him a sketch of one in "Martin's Philosophy."

Fitch's first model was at once built, and was soon after tried on a small stream near Davisville. The machinery was made of brass, and the boat was impelled by paddle-wheels. His own account of his invention is as follows:—

PHILADELPHIA, December 8, 1786.

To the Editor of the Columbian Magazine.

SIR,—The reason of my so long deferring to give you a description of the steam-boat has been in some measure owing to the complication of the works, and an apprehension that a number of drafts would be necessary in order to show the powers of the machine as clearly as you would wish. But as I have not been

able to hand you herewith such drafts, I can only give you the general principles. It is in several parts similar to the late improved steam-engines in Europe, though there are some alterations. Our cylinder is to be horizontal, and the steam to work with equal force at each end. The mode by which we obtain what I take the liberty of terming a vacuum is, we believe, entirely new, as is also the method of letting the water into it, and throwing it off against the atmosphere without any friction. It is expected that the engine, which is a twelve-inch cylinder, will move with a clear force of eleven or twelve hundred weight after the frictions are deducted; this force is to act against a wheel of eighteen inches diameter. The piston is to move about three feet, and each vibration of the piston gives the axis about forty evolutions. Each evolution of the axis moves twelve oars or paddles, five and a half feet, which work perpendicularly, and are represented by the stroke of the paddle of a canoe. As six of the paddles are raised from the water six more are entered, and the two sets of paddles make their strokes about eleven feet in each evolution. The cranks of the axis act upon the paddles about one-third of their length from the lever-end, on which part of the oar the whole force of the axis is applied. Our engine is placed in the boat, about one-third from the stern, and both the action and the re-action turn the wheel the same way.

With the most perfect respect, sir, I beg leave to subscribe myself,

Your very humble servant, JOHN FITCH.

Another of Fitch's boats, in April, 1790, made seven miles an hour. Fitch, writing of this boat, says that "on the 16th of April we got our work completed, and tried our boat again; and, although the wind blew very fresh at the east, we reigned lord high admirals of the Delaware, and no boat on the river could hold way with us." In June of that year it was placed as a passenger-boat on a line from Philadelphia to Burlington, Bristol, Bordentown, and Trenton, occasionally leaving that route to take excursions to Wilmington and Chester. During this period, the boat probably ran between two thousand and three thousand miles, and with no serious accident. During the winter of 1790-1791, Fitch commenced another steamboat, the "*Perseverance*," and gave considerable time to the prosecution of his claim for a patent from the United States. The boat was never completed, although he received his patent, after a long and spirited contest with other claimants, on the 26th of August, 1791, and Fitch lost all hope of success. He went to France in 1793, hoping to obtain the privilege of building steam-vessels there, but was again disappointed, and worked his passage home in the following year,¹ and later brought out a new boat in New York City driven by a screw-propeller. It seems to have been customary to secure a witness in those days as in our own, and we have the following :

This may certify that the subscriber has frequently seen Mr. Fitch's (John Fitch) steamboat, which with

¹ *History of the Steam-Engine*, p. 240.

great labour and perseverance he has at length completed; and has likewise been on board when the boat was worked, against both wind and tide with considerable velocity, by *the force of steam only*. Mr. Fitch's merits in constructing a good steam-engine, and applying it to so useful a purpose, will no

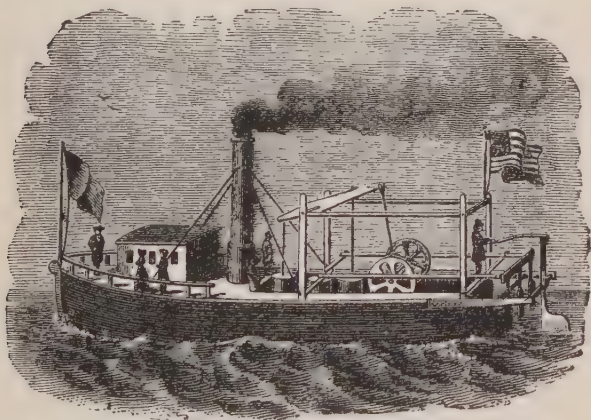


Fig. 5. — John Fitch, 1788.

doubt meet with the encouragement he so richly deserves from the generosity of his countrymen, especially those who wish to promote every improvement of the useful arts in America.

(Signed)

DAVID RITTENHOUSE.

PHILADELPHIA, Dec. 12, 1787.

Fitch finally retired to a farm, which he pre-empted from the public lands, in Kentucky, and there died

in 1798, and was buried with a model of his steamboat beside him.

Mr. Wm. A. Mowry thus states another historical fact:¹ "After Watt had invented the steam-engine, Captain Samuel Morey, of Orford, N. H., was fully persuaded that the power of steam could be applied to propelling boats by the means of paddle-wheels. He therefore set himself to the task of inventing a boat to be thus propelled by steam. This he accomplished. He made the boat, built the steam-engine, put in the necessary machinery, and with a single companion, if not entirely alone, made his first trial-trip with complete success, running from Orford, on the Connecticut River, to Fairlee, Vt., and returning to Orford. This was as early as 1793, probably in 1792, although one writer says 1790, — at least fourteen years before Fulton's trial-trip in the 'Clermont' up the Hudson, and nine years before his first trial-boat was constructed in France."

Another interesting illustration of the frequently observed fact that a common thought often either simultaneously comes to the minds of many men, or passes, like the electric current, from one to another, when circumstances and a favourable route of communication permit, is seen in the entrance upon the scene at about this time of John Stevens, of New Jersey. It is said that, driving along the bank of the Delaware, he suddenly came in sight of the little steamboat of Fitch, which that inventor was just then running between Bordentown and Philadelphia, and at once deter-

¹ Providence Journal, 1874.

mined that he could and would accomplish that, as yet, only partially completed task. Returned home, he at once set about the construction of engine and boat; and after several years of intermittent labour brought, in 1804 and 1805, two forms of engine and boilers, and two boats, in which he adopted the screw as the propelling instrument, employed high-pressure steam-engines, and attained a speed which has been variously reported as from four to eight miles an hour. He invented the "sectional" or "safety" boiler, and when Watt was still using steam at a pressure not exceeding seven pounds per square inch, he regularly operated his engines at fifty and upward. The machinery of his first boat is still preserved in excellent condition by his heirs. Later, 1807-1809, he built larger and faster boats, and adopted in their construction the common paddle-wheel and appropriately constructed engines.

Meantime the work was going on slowly but steadily on the other side the Atlantic, in the home and birthplace of the steam-engine. After the time of Hulls we meet with no authentic accounts of such inventions or experiments until about the time that Fitch began his work, when, in 1786 or 1787, Patrick Miller, of Dalswinton, built a boat in which he used manual power to turn paddle-wheels. A young student, tutor to his sons, then suggested the use of steam-power, and soon after published an account of his scheme (1787), asserting that he "had reason to believe" that the steam-engine might thus be made useful. Miller, Taylor, and a young mechanic,

William Symmington, the inventor of a new form of steam-engine, finally entered into an arrangement resulting in the construction, in 1788, of a boat (Figure 6) only twenty-five feet long, of seven feet beam, and of rude form, which was reported to make five miles an hour.



Fig. 6. — Miller, Taylor, and Symmington, 1788.

From what follows, this would seem to have been a vessel with a divided or “catamaran” form of hull :¹—

DUMFERLINE, 6th of June, 1789.

GENTLEMEN, — The bearer, Mr. William Symington, is employed by me to erect a steam-engine for a double vessel, which he proposes to have made at Carron. I have therefore to beg that you will order the engine to be made according to his directions.

¹ Preble on Steam Navigation, p. 20.

As it is of importance that the experiment should be made soon, I beg also that you will assist him, by your orders to the proper workmen, in having it done expeditiously. I am, ever, with great regard, gentlemen, your most obedient, humble servant,

PATRICK MILLAR.

To the CARRON COMPANY, Carron.

In the following year, a larger and still more successful vessel was built, and a speed of seven miles an hour was attained. Nothing came of this success, however, and the partnership was dissolved. Later, Symmington went to Lord Dundas, who supplied him with capital, and in 1801 began the construction of the "Charlotte Dundas," — a paddle-steamer driven by horizontal engines, and sufficiently powerful to serve as a towboat on the canals, and having a speed, running free, of five to seven miles an hour.

In France, also, the application of steam to navigation was experimentally attempted at a still earlier date. In 1770, according to Figuier, the Comte d'Auxiron and his friend, the Chevalier Mounin, supported the inventor, the Marquis de Jouffroy, in his attempt to build a steam-vessel. According to our author,¹—

"D'Auxiron determined to attempt the realization of the plans which he had conceived. He resigned his position in the army, prepared his plans and drawings, and presented them to M. Bertin, the Prime Minister, in the year 1771 or 1772. The Minister

¹ History of the Steam-Engine, p. 232.

was favourably impressed, and the King (May 22, 1772) granted D'Auxiron a monopoly of the use of steam in river-navigation for fifteen years, provided he should prove his plans practicable, and they should be so adjudged by the Academy.

"A company had been formed the day previous, consisting of D'Auxiron, Jouffroy, Comte de Dijon, the Marquis d'Yonne, and Follenai, which advanced the requisite funds. The first vessel was commenced in December, 1772. When nearly completed, in September, 1774, the boat sprung a leak, and one night foundered at the wharf.

"After some angry discussion, during which D'Auxiron was rudely, and probably unjustly, accused of bad faith, the company declined to advance the money needed to recover and complete the vessel. They were, however, compelled by the court to furnish it; but meantime D'Auxiron died of apoplexy, the matter dropped, and the company dissolved. The cost of the experiment had been something more than fifteen thousand francs.

"The heirs of D'Auxiron turned the papers of the deceased inventor over to Jouffroy, and the King transferred to him the monopoly held by the former. Follenai retained all his interest in the project, and the two friends soon enlisted a powerful adherent and patron, the Marquis Ducrest, a well-known soldier, courtier, and member of the Academy, who took an active part in the prosecution of the scheme. M. Jacques Périér, the then distinguished mechanic, was consulted, and prepared plans, which were adopted

in place of those of Jouffroy. The boat was built by P  rier, and a trial took place in 1774, on the Seine. The result was unsatisfactory. The little craft could hardly stem the sluggish current of the river, and the failure caused the immediate abandonment of the scheme by P  rier.

“Still undiscouraged, Jouffroy retired to his country home at Baume-les-Dames, on the river Doubs. There he carried on his experiments, getting his work done as best he could, with the rude tools and insufficient apparatus of a village blacksmith. A Watt engine and a chain carrying “duck-foot” paddles were his propelling apparatus. The boat, which was about forty feet long and six wide, was started in June, 1776. The duck’s-foot system of paddles proved unsatisfactory, and Jouffroy gave it up, and renewed his experiments with a new arrangement. He placed on the paddle-wheel shaft a ratchet-wheel, and on the piston-rod of his engine, which was placed horizontally in the boat, a double rack, into the upper and the lower parts of which the ratchet-wheel geared. Thus the wheels turned in the same direction, whichever way the piston was moving. The new engine was built at Lyons, in 1780, by Messrs. Fr  res-Jean. The new boat was about one hundred and fifty feet long and sixteen wide ; the wheels were fourteen feet in diameter, their floats six feet long, and the “dip,” or depth to which they reached, was about two feet. The boat drew three feet of water, and had a total weight of about one hundred and fifty tons.

“At a public trial of the vessel at Lyons, July 15,

1783, the little steamer was so successful as to justify the publication of the fact by a report and a proclamation. The fact that the experiment was not made at Paris was made an excuse on the part of the Academy for withholding its indorsement, and on the part of the Government for declining to confirm to Jouffroy the guaranteed monopoly. Impoverished and discouraged, Jouffroy gave up all hope of prosecuting his plans successfully, and re-entered the army. Thus France lost an honour which was already within her grasp, as she had already lost that of the introduction of the steam-engine in the time of Papin."

During the whole of the last quarter of the eighteenth century, invention was thus rife all over the then civilized world ; and by the end of that century success was in sight of a dozen inventors on either side the Atlantic. The attention of statesmen like Stevens, Livingston, and others had begun to be attracted to the importance of the new motor for this purpose ; and the great mechanics of every nation were seeking the best methods of construction and application of a marine engine. In the United States, Nicholas Roosevelt built a boat on the Passaic, in 1798, sixty feet long, and put into it an engine of twenty inches diameter of cylinder, driving the craft eight miles an hour on the occasion of a trial-trip on which a large party of invited guests were entertained. Livingston and Stevens had both employed Roosevelt in building engines for themselves, and their later activity in this direction was undoubtedly stimulated still further by his operations. It was at this date

that Livingston obtained from the State of New York the exclusive right to the steam-navigation of the waters of that State, which, including as they did the Hudson River, gave him a most important monopoly, conditioned, however, upon his success in the production within a year of a steamboat that should have a speed of not less than four miles an hour. The act expired through this limitation; but in 1803 he secured its re-enactment, and by the aid of Robert Fulton, who now comes forward as the prominent figure, he became one of the great agents in the final and permanently successful introduction of the steamboat.

CHAPTER III.

ROBERT FULTON'S EARLY LIFE.

ROBERT FULTON, artist, engineer, mechanic, inventor, prophet, and statesman, was a genius of the first magnitude. His later fame is, as in so many such cases, based rather upon what became most familiar in his career than upon the real capacity and talent of the man. His achievements in the introduction of steam-navigation were by no means the best or highest measures of his genius. He was an inventor, and a great one ; but he did not invent the steamboat, or, so far as is known, any part of it. He was a talented artist, but his renown does not in the least rest on his fame on that score ; he was a civil engineer, and accomplished in that branch of the constructive profession, but the fact is to-day almost unknown even to members of his craft ; he was an eminent mechanic, but the "Clermont" — his first steamboat in America — did not illustrate his genius in that direction.

The grand achievement of Fulton was the direction of an enterprise which resulted in the production by Watt and his partners in Great Britain, and by Brown in New York, of a steamboat that could give commercial returns in its actual daily operation, and the institution of a "line" of boats between New York and

Albany, the success of which insured the introduction and continued operation of steam-vessels, with all the marvellous consequences of that great event. He was a prophet, inasmuch as he foresaw the outcome of this grand revolution, in which he was so active a participant and agent; and he was a statesman, in that he weighed justly and fully the enormous consequences of the introduction of steam-navigation as an element of national greatness; but he has been recognized neither as prophet nor as statesman, both of which he was, but as the inventor of the steamboat, — which he was not.

Fulton was born at Little Britain, Lancaster County, Penn., in 1765. He was of Irish descent, his father having come from Kilkenny when quite a young man. The Fultons had, although living in the then wilderness, distinguished families for their neighbours. The family of Benjamin West lived in the adjacent county; and the home of William Henry, close by, was a rendezvous for many interesting and stimulating acquaintances and a most enjoyable society. The Fulton farm was sold to Mr. Swift in 1766, and the family removed to the city of Lancaster, in which place the father died in 1768, leaving his widow with five children to be cared for, and very little property with which to provide for them.

Robert was sent to school in 1773, and acquired the rudiments of a good English education, having, however, learned to read, to write, and to “cipher” already at home. He was not a brilliant scholar, but made fair progress, though he was vastly more inter-

ested, as are all bright boys of that age, in what was going on in the workshops of the mechanics with whom he was acquainted. On one occasion, his mother having suggested to his teacher that the boy was not giving as close attention to his books as was desirable, the honest pedagogue replied that he had done his best, but that Robert had asserted that "his head was so full of original ideas that there was no room for the storage of the contents of dusty books." The boy was then ten years old.

Even at this early age he exhibited clearly the bent of his genius by the manufacture of his own lead-pencils, — hammering out the lead from bits of sheet metal that came in his way, and made pencils which were considered hardly inferior to any graphite pencils of that time. This was two hundred years after their invention; but the Fabers had been making graphite pencils a dozen years, and the Conté process, now standard, was only invented twenty years later. It may be very possible that Fulton made a good pencil for his time. In 1778, the citizens having been forbidden by the town council to illuminate in honour of Independence Day because of the scarcity of candles, Robert invented a sky-rocket, and, as he said, proposed to illuminate the heavens instead of the streets. When it was suggested to him by a friend that this was impossible, he replied, "No, sir; there is nothing impossible."

Fulton while still a child became an expert gunsmith, and supplied to the makers in his town drawings for the whole, — stock, locks, barrels, and all, and

made computations of proportions and performance that were verified on the shooting-range. He was successful, both as designer of the main features of the gun and in his decorative work, and the makers were always glad to secure his sketches, and to profit by his computations. He designed an air-gun in 1779, at the age of fourteen, but with what success is not known.

It was at about this time that his first thought of new methods of boat-propulsion seem to have come to him. Finding the labour of "poling" a flat-bottomed boat, on the occasion of making a fishing excursion, somewhat arduous, he made a model of a boat to be impelled by paddle-wheels. In 1779, he tried his scheme on the same old fishing-boat which had so severely taxed his powers, and found it so satisfactory that he and his comrade used it a long time on their fishing excursions on the Conestoga, about Rockford, the residence of his comrade.

The boy's childhood and youth included the preliminaries to the War of the Revolution and its final successful accomplishment, and the young engineer and artist was one of the most earnest of rebels, and an honest foe of the Tories, many of whom were settled in his neighbourhood, where were quartered, for a long time, a body of the Hessian troops sent over by the British government. These events naturally turned the thoughts of the young inventor to warlike devices and military and naval inventions; and his whole later career was, not improbably, influ-

enced greatly, if not absolutely controlled, by the bent thus given his fertile brain and active mind.

Meantime the genius of painting grew strong within him ; and the development of that natural talent had become so unusual and so promising that, at the age of seventeen, Fulton thought it wise to seek a wider field for the employment and application of his time and labour. He went to Philadelphia in 1782, and there remained four years, returning to Lancaster on his twenty-first birthday. He supported himself in the interval with his pencil, and proved himself capable of doing good work in making drawings of machinery, as well as in painting landscapes. He was not only able to care for himself, but was so successful that he brought back to his mother the means of purchase of a small farm in Washington County, Penn., where he settled his mother and her family, giving her a deed of the property. Meantime, also, he had made the acquaintance of Benjamin Franklin, — then about to be sent to the Court of France, — and of other distinguished citizens of that metropolis, and had thus, by a succession of happy accidents, laid the foundation of his later fortunes.

But close confinement and intense application had enfeebled his strength, and his health began to fail, his lungs showing symptoms of such weakness that it was considered unsafe to neglect them, and his friends insisted upon his going abroad for travel, and in search of diversion, recreation, and health. His old friend, Benjamin West, had already settled in London, and had there become famous ; and it was thought that

he and other acquaintances of the promising young artist would be able to serve him in many ways, and help him secure advantageous positions and employment. He first went for a time to the Warm Springs, Virginia, and passing safely through an illness involving the lungs in a state of serious inflammation, and a period in which incipient hemorrhages were among the more unpromising symptoms, he finally became well enough to undertake the voyage, and sailed for England some time in 1786.

We have few authentic accounts of Fulton's life in the mother country. He spent some time in London with his friends, including Benjamin West, who received him most kindly, and continued an earnest and helpful friend during the remainder of his life. He was employed mainly in painting, but did not lose his interest in mechanics and scientific pursuits. He became acquainted with the Duke of Bridgewater, and with Lord Stanhope, and this friendship led to many schemes for the promotion of the useful arts through the application of Fulton's and other's inventions. Fulton's own success was great; but this did not prevent his admiring, as an artist only could, the work of his master, West. He endeavoured to secure the whole series of West's paintings for the city of Philadelphia, and entered into correspondence with his friends at home, with this object in view, and with the consent of the great painter, who was ready to dispose of the collection at what was regarded as a very moderate price, — much less than he received for his larger and most esteemed single paintings a little

later. But Fulton was unable to raise the funds at home, and the opportunity was lost.

Fulton went across the Channel and took up his residence in Paris in the year 1797, probably led to do so in the expectation that he might there find an opportunity to bring out some of the numerous inventions which were teeming in his uneasy brain. He was most hospitably received by the American minister, Mr. Barlow, and his wife ; and immediately upon the opening of their house and their establishment there, they invited Fulton to join them, greatly to his satisfaction. He accepted the kind proposal, and lived in their family seven years, practising his profession, as artist, learning the European languages, and studying the natural sciences, while at times endeavouring to find ways of putting into practical operation his schemes for improvement of various kinds of machinery.

During the few years of his residence in England, Fulton's mind had been as active in the devising of new schemes and inventions as during his boyhood and youth at home. As early as 1793, according to Colden, his biographer, he had conceived the idea of applying the engine of Watt to the propulsion of steam-vessels, and his manuscripts of that time contain confident assertions of its practicability. He patented, in 1794, a contrivance which he calls a "double inclined plane" for use in transportation ; and while living in Birmingham, at that time or a little later, contrived various new machines and apparatus of engineering. The manuscripts containing accounts of

these plans was lost, some years later, in 1804, when shipped from Paris to the United States; the vessel in which they were sent was wrecked, and the papers were ruined by submersion before they could be rescued. In the year 1794, also, which seems to have been a period of very great activity with him, he patented a marble-sawing machine, for which he afterward received the medal of the Society for the Promotion of the Arts, and the thanks of the society as well. His next invention seems to have been a machine for spinning flax; another was a rope-making machine; and still another a mechanical dredger or power-shovel,—the latter coming into use, and remaining for a long time a common machine in England.

Fulton had by this time given up his portrait painting, and thenceforward it was only the amusement of his hours of leisure or of relaxation from his labours as a civil engineer; the formal announcement of which fact was made about 1795, at which date he published a *Treatise on Canal Navigation*. He described a number of very ingenious devices in improvement of the then common methods and apparatus of locks and other accessories of the canal. In making the illustrations, he illustrated as well his own skill in drawing, and his own power of designing details of his machinery. Copies of his work were sent to the governor of the State of Pennsylvania and to General Washington, whose reply expressed much interest in the subject, and confidence in the final adoption of some such system of general intercommunication in the United States. His letter to

the governor of his native State, published in his book, exhibits a thoroughly statesmanlike quality of mind, and broad as well as liberal views.

Fulton's visit to France was made largely with the hope of securing his patents on these canal improvements, and of introducing his inventions in that country. He wrote one of his political essays in the form of a letter to Lord Stanhope, in 1798, in which he endeavoured to show the importance of public improvements, of domestic manufactures and trade, and of simple and light taxation. His idea was, as he said at the time, to secure the publication of these views, not only for the advantage of the people of Great Britain, but with the hope that they might precede him on his return to his own country, and enable him to effectively urge similar views upon the public men and legislators in America, and to develop a public sentiment in favour of what he considered essential and correct views of general economics.

Fulton was unquestionably not only thinking much on the economical problems of his time, and of general statecraft, but he was as undeniably exhibiting the grasp of the statesman upon all such great questions. He wrote a letter "to the Friends of Mankind," especially addressed to the French legislature, in which he treated such topics with ingenuity, intelligence, and force. It was at a time when the whole world was agitated by the events which preceded the French Revolution, and when the French themselves were seeking, however blindly and mistakenly, with all earnestness and good intent, the way to better

methods of government and of national life. They had already inaugurated that grand system of public education, of technical and trade-education, which in their hands, and, especially in later years, in those of the Germans, has grown so marvellously, and with such splendid results, during the intervening century, now just ending. Fulton reinforces the lesson already learned, and insists upon the essential necessity of such general and practical education, of promoting interior improvements, and all those vital works upon which the prosperity of a country depends so directly. He says, "The whole interior arrangements of governments should be to promote and diffuse knowledge and industry; their whole exterior negotiations to establish a social intercourse with each other, and to give free circulation to the whole produce of virtuous industry."¹ He was a pronounced and ardent free-trader; and his most warlike acts, his greatest inventions in the military and the naval arts, were intended to promote the cause of free-trade by driving from the ocean the fleets of all nations seeking to control the high seas for their own exclusive purposes, in order that he might thus aid in securing that safety against aggression which is the essential prerequisite of universal freedom of exchanges. "He considers what he calls the war system of the old world as the cause of the misery of the greatest portion of its inhabitants, and this leads him to a curious investigation of its effects."² His "Thoughts on Free

¹ Colden's Life of Fulton, p. 22.

² Ibid., p. 23.

Trade " follow the same line of study. In this little tract, still unpublished, he developed his ideas at some length, seeking to show that foreign possessions and taxes on imports are necessarily injurious to nations. It is dated 1797; but there is no evidence that it was ever published, or ever presented to the French government in any form. He was at this time endeavouring to impress his views upon Carnot, — the greatest statesman of his time, then the representative, in a family of men of genius, of the better ideas of the revolutionary period, — and to obtain through him some recognition of what he thought right principles of administration, and which were, in his view, essential to the promotion of the best interests of the people. When Carnot was compelled to leave Paris, at the inauguration of the new government, Fulton laid his plans before the Directory; but they do not appear to have influenced that body, and seem to have remained unnoticed.

Fulton's conclusion was: — "After this I was convinced that society must pass through ages of progressive improvement before the freedom of the seas could be established by an agreement of nations that it was for the true interest of the whole. I saw that the growing wealth and commerce of the United States, and their increasing population, would compel them to look for a protection by sea, and perhaps drive them to the necessity of resorting to European measures by establishing a navy. Seeing this, I turned my whole attention to finding out means of destroying such engines of oppression by some

method which would put it out of the power of any nation to maintain such a system, and would compel every government to adopt the simple principles of education, industry, and a free circulation of its produce." Thus it was the statesman in the portrait-painter that led him to apply his great genius as an inventor and as a mechanic to the production of new means of protecting the people, their industries, their lives, their liberties, through the novel applications of the useful arts, and guiding their genius in invention and construction, first to defence, then to better methods of production and more efficient industry. Fulton was statesman, as well as artist, mechanic, engineer, economist, inventor.

IV.

THE ARTIST AS ENGINEER.

ROBERT FULTON was an artist in the best sense of that term ; and, like all great painters or sculptors, like all men of genius who accomplish anything by actual *doing*, he was as naturally and truly a mechanic. The artistic sense has little value for purposes of accomplishment without manual and tactual dexterity and sensitive nerves and muscles in exact accord with the operations of the thought-faculty. Every successful artist, like every surgeon, investigating chemist, physicist, naturalist of whatever type, depending on manipulative operations for his triumphs, must be naturally a mechanic, with all the mechanic's intuitions largely developed. He must be a constructor as well as a thinker, and must be able to do, as well as to imagine beautiful things. All this was in Fulton, and in such degree that he turned his mind with the greatest facility from the creations of the artist to the constructions of the engineer and the mechanic. He found it as easy to take up the drawing instruments of the engineer as the pencil of the painter ; as easy to devise new forms of road, canal, ship, or machine as new and lovely pictures of landscape, or to depict human features in all their wonderful modes of expression, and to illustrate

all their marvellous shades of character. The successful artist was even more successful as engineer.

The genius of the engineer and the originality of the inventor, which has been seen in the boy of fourteen, developed with his growth, and without interruption, into his mature years. The sketches made for the gunmaker of his native town were but the prototypes of the drawings of the greater works of the engineer and of the mechanic. The invention of the sky-rocket was the antecedent of the invention of a submarine engine-of-war; the little paddle-boat on the Conastoga was the symbol of the later steamboat on the Seine and on the Hudson; and the boy inventor was the parent of the man as engineer. But the genius which had been, in youth, guided and given direction by the whims of the child, in later years was made the servant of the sage; and the grander plans of the statesman, devised with a view to the amelioration of the trials of humanity, were promoted effectively by the application of the same genius to their accomplishment. The glory of the inventor is the greater that it came of the grander thought of the humanitarian.

Fulton's work as engineer appears to have been both extensive and successful. His attention seems to have been called at an early period in his professional career to the extension and improvement of canals. The floods of 1795 in Great Britain, where he was then residing, destroyed much property, and seriously injured portions of the Shrewsbury Canal, especially in the neighbourhood of Long, where it was

carried over the Tern on an aqueduct of some magnitude. Fulton at once set about the study of better methods of construction, and devised many ingenious forms of apparatus and machinery for use in canal construction and operation. He proposed, in 1796, a cast-iron aqueduct, of which he submitted complete plans and working drawings to a committee of the Board of Agriculture, in March of that year. He proposed the use of castings which, as he said, could be "cast in open sand," and erected without other than the simplest and most inexpensive kind of staging, instead of the elaborate centring necessitated by construction of stone arches, — a detail of the older construction which often cost more time and more thought in planning, and proved hardly less costly in building, than the main structure itself after its completion. He showed that his plan compelled the making of but few patterns, and those of easy and cheap construction; and that the difficulties of securing a water-tight lining so great in stone works of this sort, were, with iron, insignificant. In case of a leak occurring later, it would be easily and quickly detected, and as readily and certainly staunched; while in stone it often was not observed until much damage had been done; and its repair was sometimes a matter of great difficulty, delay, and expense.

One of these aqueducts of cast-iron was afterward erected, on the plan of Fulton, over the Dee, at Pontcylttee, twenty miles from Chester, composed of eighteen spans of fifty-two feet each, and supported on pillars, the tallest of which, in the middle of the val-

ley, was one hundred and twenty-six feet high. The total length of the structure was about three hundred and twenty-nine yards, its width twenty feet, and its depth six feet. The tow-path was secured on one side, bracketed to the body of the aqueduct, and rendered safe by means of a strong iron rail.

The same principles were adopted in the preparation of plans for bridges of various kinds, and for all purposes; and plans, detail drawings, and models were exhibited to the Board of Agriculture at about this time, for canals, railways, — then already in existence, though before the days of steam locomotion and of the substitution of the steam-horse for animal power,— and for highways. Several of these bridges were erected on the line of the Surrey Iron Railway, including one at Wandsworth. Bridges were designed by Fulton for carrying the roads across deep and wide valleys on inclined gradients; and in such cases, often, he proposed to haul them over by means of endless ropes, instead of sending the horses over with them on tow-paths attached to the bridge, or forming part of it. Water-power or other efficient motor was to be employed where convenient. The modern and now usual system of discharging from the railway into barges or vessels by dumping the load from the cars or wagons into a slide leading down to the water-side from the higher level of the road, was one of the plans here introduced. Special provisions were made for the passing of roads, water-courses, and other lines of rail, and the whole formed a complete and consistent scheme. Fulton's biographers state that he

always made the most perfect and detailed plans, the neatest of drawings, and usually very accurate models, before proceeding with his proposals or laying them before capitalists or public officials. His computations of costs were equally exact, detailed, and well planned, giving the expense of details of construction, foot by foot, all dimensions, the loads to be carried for a single horse, the speed, the profits, and the estimated revenue.

One of Fulton's most interesting and novel, if not his most daring of innovations, was that in which he proposed to take his boats out of the canal and transport them overland at certain parts of the route, to avoid the first cost of construction of a canal in a difficult country. These "inclined planes" were actually built, and were found practicable; and illustrations of this plan have been in use for many years in the United States, on the line of the Morris and Essex Canal and elsewhere, while the great scheme of Captain Edes, of a trans-isthmian railway, uniting the Atlantic and Pacific Oceans, was a development of the same idea on a grander scale. This invention was patented by Fulton in England, in May, 1794. It was proposed that the boats should be either taken upon cradles of suitable form and size or into caissons in which they could float, and the whole mass then drawn out of water on wheels, and up the inclined planes to the higher level, or lowered from the upper to the lower level, as might be required, by horse-power. Counterbalances were adopted to make the total load a minimum, and every device then known was applied

for reducing friction and resistances. Water-power, where available, was to be substituted for horse-power, and brakes were employed to control the load when lowering it. It was proposed that in this manner advantage should be taken of the opportunities occasionally offering to utilize broad streams, or even considerable lengths of rivers, in place of the costly construction of canals, by sending the boats down on the one side and taking them up on the other, or by running for a distance along the thread of the stream, then resuming the course of the canal, transferring from the one to the other by means of inclined planes. The boats were so designed that they could be easily hauled by horse-power, and yet so light that the transfer on the inclined planes should not, even where quite steep, become a serious task. In other cases, he arranged for drawing water from the upper level and sending it down into the lower portion of the canal, utilizing its weight in the passage by employing it in the raising of the boats. In some cases he used centrifugal fans or blowers as regulators of speed.

These plans were, many of them at least, described in a treatise "*On the Improvement of Canal Navigation*," published in London, in 1796, in 4to size, and illustrated by many neatly-made plates. Several forms of boat for his special purposes are there shown by Fulton, and each adapted to its peculiar purpose, as for rapid or for slow speeds; for marketing or for heavy freighting; for mounting on wheels and transportation overland. He used an elevator

for perpendicular lifts, and described all its details of construction, including a counterbalance, which relieved the hoist from unnecessary strains. This subject occupied the attention of the great engineer throughout the remainder of his life ; and later, even while in the midst of the most engrossing labours on the more immediately promising inventions, and while working upon his scheme of steam-navigation, Fulton was able to find an occasional opportunity to give a little leisure to the promotion of canal construction abroad and at home. His treatise on the subject, published in both French and English, called the attention of Mr. Gallatin, later Secretary of the Treasury of the United States, to his work, and he was invited by that gentleman to present his views in detail, for use in a Report to Congress relating to internal improvements.

In his report to the Secretary of the Interior, Fulton exhibits his statesmanlike quality of mind, and some of his most impressive thoughts. He quotes Hume, who says : "The government of a wise people would be little more than a system of civil police ; for the best interest of man is industry and a free exchange of the produce of labour for the things that he may require," and goes on to ask "what stronger bonds of union can be invented than those which enable each individual to transport the produce of his industry twelve hundred miles for sixty cents the hundred weight?" He refers to the case of England and Scotland, once enemies, now bound together "by habit, by turnpike roads, by canals, and by reciprocal

interests ;” “and when the United States are bound together by canals, by cheap and easy access to a market in all directions, by a sense of mutual interests arising from mutual intercourse and mingled commerce, it will be no more possible to split them into independent and separate governments, each lining its own frontiers with fortifications and troops, to shackle their own exports and imports to and from the neighbouring States, than it is now possible for the government of England to divide and form again into seven kingdoms.” And speaking of his ideas and their origin, he says : “It is now eleven years since I have had this plan in contemplation for the good of my country ;” and “it contemplates a time when canals shall pass through every vale, winding around each hill, and bind the whole country together in bonds of social intercourse.”

On his return to his native country in 1807, Fulton addressed letters to the Government on this subject, and again in 1810 wrote to the legislature of New York on the same subject, acting later as a commissioner to investigate the practicability of securing intercommunication in this manner between the waters of the great lakes and the Hudson. As late as 1814 he was still urging this project, which finally resulted in the construction of the Erie Canal, — a system of public improvements which became ultimately a source of enormous wealth to the country, and of advantage to the State through which it passed.

In a letter to President Madison in 1810 he wrote : “Canals bending around the hills would irrigate the

grounds beneath and convert them into luxuriant pasturage. They would bind a hundred millions of people in one inseparable, compact body, alike in habits, in language, and in interest, — one homogeneous brotherhood, — the most invulnerable, powerful, and respectable on earth.” “Will you not search into the most hidden recesses of science,” he asks, to find a means “to direct the genius and resources of the country to useful improvements, to the sciences, to the arts, education, the amendment of the public mind and morals?” “In such pursuits lie real honour and the nation’s glory;” “such are the labours of enlightened republicans, — of those who labour for the public good.”

V.

THE ENGINEER, AS INVENTOR, IN SUBMARINE
WARFARE.

WHILE it is true that the genius of Fulton as an inventor was to a certain extent exhibited in his civil constructions, and in his numerous novel devices for the improvement of canals and their navigation, the engineer of to-day would regard them as rather simple and commonplace constructions, and as illustrating the ordinary solution of every-day problems, rather than as the product of remarkable inventive talent. Were there any question of his great skill and talent in this department, however, the study of his plans for the institution of a system of submarine navigation and warfare would thoroughly remove all doubt. In the early part of the century, perhaps before, he had given much thought to the means available for securing what he considered essential to the independence of nations, — the freedom of the seas. These studies finally resulted in the production of a very complete system, both of apparatus and methods, and in the attainment of some success — a very remarkable degree of success for those times — in their application in practice.

Fulton was in France in the year 1803, when he received a message from the British ministry, asking

that he meet an agent of that government in Holland for the purpose of discussing the character and applications of his invention, the general nature of which was fully understood by Lord Stanhope, who had become interested in Fulton and had kept him in view, apparently hoping to secure from him some useful inventions for use in the British army and navy. The inventor proceeded to Holland as arranged ; but the agent did not meet his appointment, and Fulton returned to Paris, where he was followed by his intending correspondent in the spring of the year 1804, by whom he was induced to visit London and confer with the new ministry. A commission was appointed in June of the same year, consisting of five distinguished engineers and military men, who examined the plans presented them with interest, but with true British conservatism reported against them as "impracticable." Fulton proceeded at once to demonstrate their entire practicability.

An expedition fitted out against the French fleet in the harbour of Boulogne failed in consequence, not of defects in the torpedoes, but through some inadvertence in their operation by the inexperienced men intrusted with their application. Fulton next conducted experiments illustrating their value and power, blowing up a heavy brig in Walmar roads, beyond Deal, October 15, 1805, under the walls of the castle of Mr. Pitt. Seventy pounds of powder were employed, and the result, as described by the inventor, was perfectly satisfactory : "Exactly in fifteen minutes from the time of drawing the peg and throwing the

carcass into the water, the explosion took place. It lifted the brig almost bodily, and broke her completely in two. The ends sank immediately, and nothing was seen but floating fragments." . . . "In fact, her annihilation was complete, and the effect was most extraordinary." The vessel "went to pieces like a shattered eggshell." Nothing came of his efforts, however, in Great Britain.

The work which had thus attracted the attention of the British government had been in progress, however, for some years in France before Fulton was called to England, and he had already been equally disappointed by the French government. His motto had been, as he afterward expressed it, "The liberty of the seas will be the happiness of the earth;" and his desire was to break up all naval warfare. He was therefore indifferent where or how his enterprise should begin. Naval warfare once rendered impossible, the freedom of the seas was assured, and the liberty and prosperity of his native country to that extent made safe. His first experiments were made at least as early as 1797, when with the aid of Mr. Barlow in Paris he attempted to make a form of what to-day would be called the "automobile," or self-moving torpedo. His machine was intended to drive a cigar-shaped torpedo in a definite direction, and to a prescribed place, and there to fire the charge. The experiment was not a success, however; and it was long before he could accomplish anything at all satisfactory to himself. The Fulton "automobile" torpedo was the precursor and the prototype of the

Lay and Howell, the Whitehead, and all the fleet of torpedoes of modern times.

In spite of every discouragement, the great engineer and inventor worked on, seeking ways, as he said, to deliver the world from British oppression by making the high seas free to all. The Directory, however, rejected his plans, and would have nothing to do with his experiments. A change occurred in the outlook the instant the First Consul took his place in the government. He was immediately interested in the plans of the American mechanic, and at once formed a commission, consisting of Volney, La Place, and Monge, all distinguished men, to investigate the schemes to be laid before them. Fulton built a submarine boat during the winter of 1800-1801, and in the following summer invited this commission to witness experiments with it, intending to make it of service in his system of torpedo-warfare.

This "diving-boat," as he called it, seems to have been remarkably successful, judging it by even our modern standards, and is worthy of description.¹

In the course of his experiments at Brest, Fulton found it to be perfectly practicable to descend to any depth, and to take any course that he might desire. He actually entered channels of twenty-five feet depth and explored their deepest soundings, and was only

¹ Mr. Fulton had directed the whole force of his mind to mathematical learning and mechanical philosophy. Plans of defence against maritime invasion, and of sub-aquatic navigation, had occupied his reflections. During the late war, *he was the Archimedes of his country.* — REIGART.

prevented from attempting greater depths by the fact that he had a boat which would not safely withstand the great external pressure there met. The depth was determined by the use of the barometer, measuring the external pressure, and he directed the course by means of the compass. He found the boat as obedient to the helm under water as above. The air-supply was renewed by drawing upon a reservoir in which was compressed two hundred times its volume of atmospheric air. Using this as a reserve, the inventor was able to remain under water nearly four hours and a half.

St. Aubin's account, as given by Colden, is as follows: "The diving-boat, in the construction of which he is now employed, will be capacious enough to contain eight men, and provision enough for twenty days, and will be of sufficient strength and power to enable him to plunge one hundred feet under water, if necessary. He has contrived a reservoir of air, which will enable eight men to remain under water eight hours. When the boat is above water it has two sails, and looks just like a common boat; when she is to dive, the mast and sails are struck.

"In making his experiments, Mr. Fulton not only remained a whole hour under water, with three of his companions, but had the boat parallel to the horizon at any given distance. He proved that the compass points as correctly under the water as on the surface, and that while under water the boat made way at the rate of half a league an hour, by means contrived for the purpose.

“It is now twenty years,” continues St. Aubin, “since all Europe was astonished at the first ascension of men in balloons; perhaps in a few years they will not be less surprised to see a flotilla of diving-boats, which on a given signal shall, to avoid the pursuit of an enemy, plunge under water, and rise again several leagues from the place where they descended.

“The invention of balloons has hitherto been no advantage, because no means have been found to direct their course. But if such means should be discovered, what would become of camps, cannons, fortresses, and the whole art of war?

“But if we have not succeeded in steering the balloon, and even were it impossible to attain that object, the case is different with the diving-boat, which can be conducted under water in the same manner as upon its surface. It has the advantage of sailing like the common boat, and also of diving when pursued. With these qualities it is fit for carrying secret orders, to succour a blockaded fort, and to examine the force and position of the enemy in their harbours. These are sure and evident benefits which the diving-boat at present promises. But who can see all the consequences of this discovery, or the improvements of which it is susceptible? Mr. Fulton has already added to his boat a machine, by means of which he blew up a large boat in the port of Brest; and if by future experiments the same effect could be produced in frigates or ships-of-the-line, what will become of maritime wars, and where will sailors be found to man ships-of-war when it is a physical cer-

tainty that they may at every moment be blown into the air by means of diving-boats, against which no human foresight can guard them?"

It was in relation to the plans of this boat that the keen-sighted Napoleon wrote his order for the organization of the commission empowered to examine and report upon Fulton's plans, and of which order the following is the text:—

"I have just read the project of Citizen Fulton, Engineer, which you have sent me much too late, since it is one that may change the face of the world. Be that as it may, I desire that you 'immediately' confide its examination to a commission of members chosen by you among the different classes of the Institute.

"There it is that learned Europe would seek for judges to resolve the question under consideration. A great truth, a physical, palpable truth, is before my eyes. It will be for these gentlemen to try and seize it and see it. As soon as their report is made it will be sent to you, and you will forward it to me. Try and let the whole be determined within eight days, as I am impatient.

"From the Imperial Camp at Boulogne, this 21st July, 1801."

Thus, although his talent as an inventor and his skill as a great mechanic and engineer were not displayed in any remarkable way in the construction of his steamboat, they were exhibited most remarkably in both earlier and later work, and were most wonderfully displayed in all the details of his methods of submarine warfare.

One of the greatest of all inventions was this "diving-boat," in which, like a veritable Captain Nemo, he prowled about beneath the waters of the harbour of Brest during all the summer of 1801, coming to the surface like the gigantic balæna to get breath, plunging beneath it again, rising or diving, moving forward or backward, turning and returning, and after a time coming above water where least expected, and sailing away like any of the commonplace craft with which the harbour was crowded. He spent, at times, several hours below the surface; and once, when a ship was placed at his disposal by Bonaparte, then First Consul, he attacked her from beneath, and blew her into the air with his torpedoes.

Fulton's diving-boat, the "Nautilus," and his powerful torpedoes, kept the British fleet in a state of perpetual apprehension; for it was well known that he was negotiating with the French government for the purchase of his inventions, and had promised Napoleon "to deliver France and the whole world from British oppression."

Dissatisfied with the passive and uncertain character of torpedoes as weapons of submarine warfare, Fulton, although far more successful in their use than any inventor of his own or even the succeeding generation, finally gave up all his experiments, and next turned his attention to the adaptation of heavy ordnance to use under water. Returning to the United States in December, 1806, after nearly twenty years' residence in Europe, and breaking off the fruitless negotiations with the Governments of

France and England, in which he had sacrificed so much time during the previous five years, he presented his plans to the Government of the United States. He received much encouragement from President Jefferson, from President Madison, and from Smith, the Secretary of State and of the Navy under the two Presidents.

According to Colden, in a paper which Mr. Fulton read to certain gentlemen who were appointed by the British ministry in the month of August, 1806, to confer with him, he says: "At all events, whatever may be your award, I never will consent to let these inventions lie dormant, should my country at any time have need of them. Were you to grant me an annuity of £20,000 a year, I would sacrifice all to the safety and independence of my country."

Fulton concludes a letter to Lord Grenville in the following words: "It never has been my intention to hide these inventions from the world on any consideration. On the contrary, it ever has been my intention to make them public as soon as may be consistent with strict justice to all with whom I am concerned. For myself, I have ever considered the interest of America, free commerce, the interest of mankind, the magnitude of the object in view, and the national reputation connected with it, superior to all calculations of a pecuniary nature."

While conducting the correspondence with Jefferson, Fulton wrote a letter describing his "method of firing guns under water." The inventor received a favourable reply from the ex-President; and this letter

is one of those papers which will always possess historical interest, as having formed a part of the most interesting correspondence of those eventful times.

The greatest naval engineer of the generation just passed away improved upon the rude methods and the comparatively feeble apparatus of Fulton; and beside that latest and most formidable of modern engines of war, — the “Destroyer” of Captain Ericsson, — the almost forgotten, the never well-known, devices of the artist-engineer may appear insignificant. Yet when the circumstances by which he was surrounded are remembered, the total lack of all our modern knowledge of the technics of the profession, the absence of all those conveniences that now seem essential to good construction, the absence of all our standard forms of machinery, the inexperience of the workmen who were necessarily intrusted with the carrying out of his plans, and the positively obstructive policy of many departments of government, as well as the opposition of rival claimants of public and private countenance and assistance, — when it is realized how much of talent and how much of enterprise, energy, and persistence were demanded in the accomplishment of such tasks as Robert Fulton so splendidly and successfully undertook, it will certainly be acknowledged that he deserves all the fame that has been accorded him, either as a great mechanic or an ingenious and successful inventor.

The author possesses the autographic copy of the letter to President Jefferson, in 1813, written by Fulton, and left among his papers after his death. The

following is the text, illustrated with pen and ink sketches, here reproduced in fac-simile, precisely as roughly drawn in the hurry of composition or of copying by the inventor, and with all the faults retained.¹

NEW YORK, June 29, 1813.

THOMAS JEFFERSON, ESQ.

DEAR SIR, — As you take a lively interest in every discovery which may be of use to America, I will communicate one I have made, and on which I have finished some very satisfactory experiments, that promise important aid in enabling us to enforce a respect for our commerce, if not a perfect liberty of the seas. My researches on torpedoes led me to reflections on firing guns under water, and it is about a month since I commenced a suit of experiments.

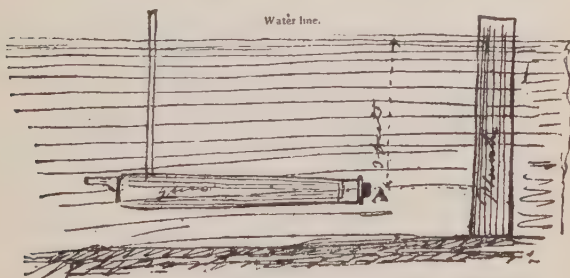


Fig. 1. — First Experiment.

FIRST EXPERIMENT.

A gun 2 feet long, 1 inch diameter, was loaded with a lead ball and one ounce of powder; I put a

¹ This letter was published, with the consent of the present owner, in the *Century Magazine*, August, 1881.

tin tube to the touch-hole, made it water-tight, and let it under water 3 feet. Before it I placed a yellow-pine plank, 4 inches thick, 18 inches from the muzzle. On firing, the ball went through the 18 inches of water and the plank. When the gun is loaded as usual, a tompkin or plug is put in the muzzle, to keep the water out of the barrel, as at *A*. In this experiment the gun being immersed, with the pressure of three feet of water on all its parts, that circumstance might be assigned as a reason for its not bursting. It then became necessary to try the effect with the muzzle in water and the breech in air.

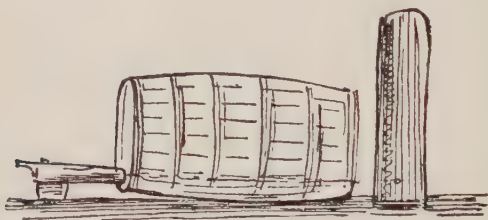


Fig. 2. — Second Experiment.

SECOND EXPERIMENT.

I procured a common wine pipe and inserted the gun, loaded as before, into one end, near the bottom ; the muzzle in the wine pipe 6 inches, the breech out 18 inches. The pipe was then filled with water to the bung-hole, having a head of water of 2 feet 3 inches above the gun, and a body of water three feet long, through which the bullet had to pass. I then placed the opposite end of the pipe against a yellow-

pine post, in such manner that if the ball went through the water and pipe, it should enter the post. *I fired.* The ball passed through the three feet of water, the end of the pipe, and 7 inches into the post; the cask was blown to pieces, the gun not injured.

THIRD EXPERIMENT.

I obtained a cannon, — a 4-pounder, — for which I cast a lead ball that weighed 6 pounds 2 ounces; the charge $1\frac{1}{2}$ pounds of powder. I placed it under water 4 feet, fired at a target distant 12 feet. The ball passed through the 12 feet of water, and a yellow-pine log 15 inches thick; the gun not injured.

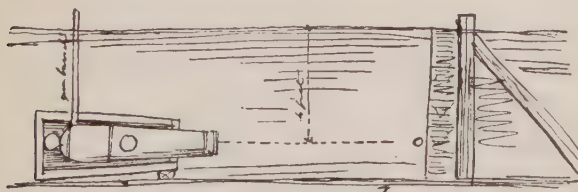


Fig. 3. — Fourth Experiment.

FOURTH EXPERIMENT.

I put an air box round the same cannon, except one foot of the muzzle, so that the muzzle might be in water, the breech in air, then let it under water 4 feet, and fired as before through 12 feet of water and 15 inches of yellow-pine; gun not injured.

FIFTH EXPERIMENT.

I ordered a frame to be made of two pine logs, each 13 inches square, 45 feet long, on one end of which I placed a columbiad carrying a ball 9 inches diameter, 100 pounds weight. On the other end I erected a target 6 feet square, 3 feet thick, of seasoned, sound oak, braced and bolted very strong, thus.

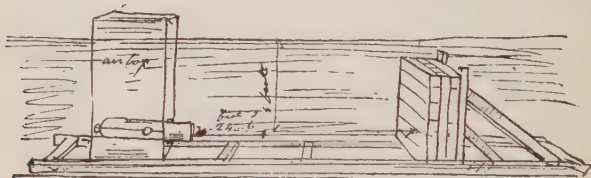


Fig. 4. — Fifth Experiment.

The columbiad, except two feet of the muzzle, was in an air box, the muzzle 24 feet 6 inches from the target, the charge of powder 10 pounds. When fired, the ball entered only 9 inches, — that is, its diameter, — into the oak; the columbiad not injured. This experiment proved the range of 24 feet 6 inches through the water to be too great.

SIXTH EXPERIMENT.

I took away the columbiad and box, and put a 24-pounder in its place, loaded with 9 pounds of powder, the muzzle 22 feet from the target. On firing, it entered the target only its diameter, — that is, about 6 inches. Without mathematical experience,

the conclusion would have been that the 24-pounder, having a quantity of powder equal to near one half the weight of the ball, and the ball, $5\frac{1}{2}$ inches diameter, presenting little more than one third the resistance to the water and wood that was presented by the 9-inch ball, it should have entered further into the target. *It did not*; momentum was wanting.

SEVENTH EXPERIMENT.

I loaded the columbiad with 12 pounds of powder, and placed the muzzle 6 feet from the target, the muzzle of the gun 2 feet under water; the place where the ball struck the target 5 feet under water. In this case, the ball went through the target 3 feet thick, and where is not known; the target was torn to pieces. In this experiment I fortunately proved beyond a doubt that columbiads can drive balls of one hundred pounds weight through six feet of water and the side of a first rate man-of-war.

On examining Doctor Hutton's experiments and theory of projectiles *in air*, and comparing the density of air with water, the theory is that the columbiad fired might have been 10 feet from the target; the ball would then have struck with a velocity of 650 feet a second, and have passed through 3 feet of oak. Had the columbiad been 16 feet long, and made of a strength to fire with 20 pounds of powder, the range might have been 15 feet through water. But I will take the medium distance of 10 feet, and then the first undeniable principle is, that one vessel can range alongside of another within 10,

or 6, or even 5 feet, when giving the broadside of only two 9-inch balls through the side of the enemy, 8 feet below her water-line. The water would rush in with a velocity of 16 feet in a second, and sink her in 20 or 30 minutes; but from what I have seen in this sluggish kind of shot, I believe if they were put in about 5 feet from each other they would destroy timbers between the two points of shock, and open a space of many square feet, as thus. To put this discovery of submarine firing into



Fig. 5.

practice against the enemy, I have invented a mode for placing my columbiads in ships, from 4 to 8 feet below the water-line, as in the following drawing.

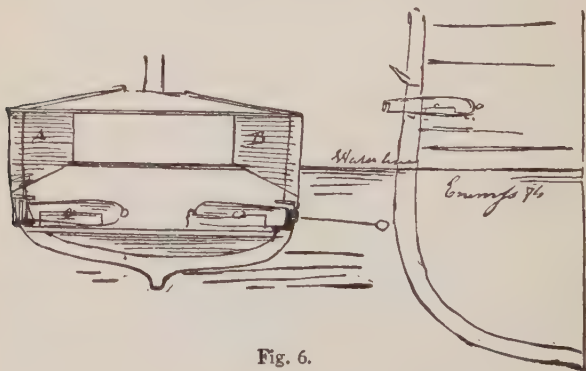


Fig. 6.

My guns are to be cast with two rims round the muzzle, thus. The space *a*, *b*, to be woulded with



Fig. 7.

hemp, and covered with thick leather; the gun then forms a piston like that of a steam-engine or the piston of a forcing-pump. The gun so prepared, there is a brass cylinder, with a strong head, cast, and bored, and bolted in the side of the vessel. When, as in Figure 8, the gun is run into this cylinder, it fits it exactly as the piston does a pump; then if the caliber of the gun be 9 inches diameter, there must be a hole through the bottom of the cylinder of 11 inches, as at *C*, to let the bullet pass, which hole is covered with a strong sliding valve, the axis of which comes inside of the vessel, as at *D*; when the gun is run into the cylinder and ready to be fired, the valve opens. On firing, the gun recoils, shuts the valve, and stops out the water. Thus my guns can be loaded and fired under the water-line with near the same ease they are now worked above the water-line. My present idea is to have four columbiads on each side of a vessel,

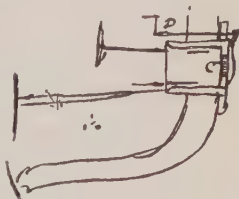


Fig. 8.

and two in her bow, so that, whether she runs bow or side on to the enemy, the bullets must pass through her, as in Figure 9. You will observe, in these sketches, that not using guns above the water-line, I have no port-holes, and the sides above the water may be 7 or 8 feet thick, of pine logs, which renders them not only bullet-proof, but the vessel so buoyant that she cannot be sunk in this manner. My men who work the guns are out of danger under the water-line, and those who steer or work the sails are guarded by walls of wood, as *A, B*, Figure 6. For



Fig. 9.

harbour defence, and perhaps finally for service, I have combined a steam-engine with this kind of vessel, to bring her up to the enemy in a calm, or light breezes. In harbours I would not use masts or rigging; there would be nothing to shoot away, nor to hold by in case of attempts at boardage; and in such case, as my deck would not be wanted for fighting or any other purpose, *while in action* I could make it inclined to twenty-five degrees, and slush it so that boarders could not keep their feet, but must slide into the water, they not having a pin or rope to hold by. The steam-engine would give a vessel of this description the means of playing

around the enemy, to take choice of position on her bow or quarter, and with little or no risk sink everything that came into our waters.

For sea service we must depend more on numbers, of which the calculations are in favour of my plan, —

A seventy-four will cost \$600,000, and then the seventy-four of an enemy is equal to her in power. The enemy also have such fleets as will enable them to bring two to one ; therefore the chances are against us. For \$600,000 I can build seven vessels. Were they to attack a seventy-four, she could not dismast the whole of them ; some one must get within the range of eight or ten feet of her, where one fire from any one of them would certainly destroy her. This changes the chances seven to one in our favour, and against the enemy, for the same capital expended.

This represents the seven vessels bearing down on

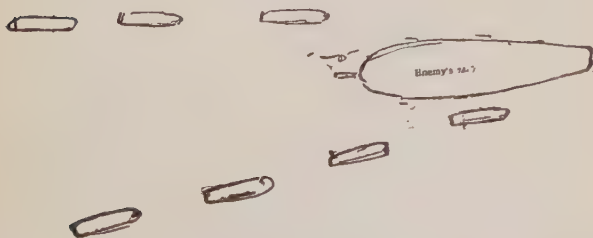


Fig. 10.

an enemy. Here it is obvious that she cannot bring her guns to bear on more than one or two of them ;

if she lies to to fight, they must surround her; but if she sails better than any of them, and runs away, our object is gained, for then she can be driven off the ocean into port. As columbiads of 9-inch caliber are tremendous engines for close quarters, I could have two on pivots and circular carriages within my wooden walls, as thus, which being loaded with

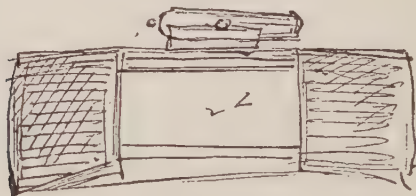


Fig. 11.

semi-shot and chains twenty feet long, would at two hundred yards distance, while bearing down, cut her rigging, and disable her before coming to close action. We are now engaged in a war for principles important to our independence and interest as an active and great commercial nation, and if we fail, generations to come must contend for it until they succeed. At all events, millions must be expended, which, if as successful as our present hope, will fall far short of the liberty of the seas. In expectation to discover in the concealed magazines of science some certain mode for destroying military navies, and thereby establishing a perfect liberty of the seas, I have laboured at intervals with much ardour for thirteen

years. I now submit to your reflections whether I have found it. My present impression, and Commodore Decatur's, is that I have. This is also the opinion of many friends. For you will consider, that if those vessels can destroy such as now exist, they cannot be used against each other without both parties going to the bottom ; and such war cannot be made, — as duels would never be fought if both parties were obliged to sit on a cask of powder, and ignite it with a quick-match.

Two millions of dollars would build twenty such vessels ; sixty men to each would be sufficient. Total, twelve hundred men. Such a fleet would clear our coast ; and the probability is it would be the most powerful fleet in the world. One, however, should be built by Government, to establish principles on the public mind which are already proved in private. On the whole of this subject, after you have maturely reflected, it will give me great pleasure to have your opinions ; and if it coincides with mine, your influence at Washington may be necessary to carry it into effect. I sincerely hope this new art may give many pleasing hours to your evening of life. As this wish is from the heart, it is better than the usual unmeaning compliments with which letters are concluded.

ROBERT FULTON.

SPECIFICATION.

I, Robert Fulton, give the following specification of my invention for injuring or destroying ships and vessels of war, by igniting gunpowder below a line horizontal to

the surface of the water, or so that the explosion which causes injury to the vessel attacked shall be under water. Therefore, instead of having the cannon and port-holes of a ship or vessel of war as usual, above the surface of the water, I place my cannon so low in the vessel that their port-holes will be below the surface of the water any number of inches or feet which may be required, from six inches to four, six, ten, or more feet ; and thus, the cannon being fired with its muzzle under water, the bullets will pass through the water instead of through air, and through the sides of the enemy, from one to ten or more feet below the water-line, which, letting in the water in quantity according to the size of the holes and their depth under the surface, will sink the vessel attacked.

DRAWING THE FIRST

represents the mechanism by which a cannon may be loaded inside of a ship, its muzzle be presented to hole in the side of the ship below the water-line, then be fired, its ball pass out through water, the cannon recoil into the ship, and the port-hole shut without letting in any inconvenient quantity of water. The gun may again be loaded and fired as before.

For this purpose a ring or flange is cast round the cannon, near its muzzle, which may be filled in with hemp like the packing of the piston of a steam-engine, or with leather, like the piston of a pump ; a strong cylinder of brass or iron, or the most fit metal for the water in which it is to be used, is to be neat and smoothly bored, like the air-pump or cylinder of a

steam-engine, and of a size exact to receive the muzzle of the cannon, with its before-mentioned packing ; hence, when the muzzle is pushed into the cylinder, it will be air and water tight, like the piston of a forcing-pump. The cylinder may be one, two, or more feet long, as the use may require ; on its outer end a strong head and flange cast, which flange receives screw-bolts, to fasten it tight in the side of the vessel. In the centre of the said head there is a hole two inches in diameter greater than the caliber of the cannon to be used for the cylinder. The cannon being run home until its muzzle touches the head of the cylinder, as in the drawing, the cover to the hole is to be turned to one side, and the cannon fired, the ball and charge passing through the hole. On the recoil of the cannon, the sliding piece which covers the hole will descend and stop out the water. On this plan the cannon may be mounted on a carriage with wheels or not, as future experience may prove best, and always recoil, and be worked in a line direct to the cylinder which is to receive the muzzle. In my experience so far, when the cannon is loaded as usual, I put a kind of tompkin or stopper in the muzzle, with canvas and white lead to keep the water out of the gun. Thus I have found the gun to fire perfectly well without any risk or accident. Although this mode may be good in practice, I do not positively know that the water might not be admitted into the gun, up to a water-tight wad. The first plan will do ; the latter may be proved in future practice. Cannon may be thus arranged under the water-line in such vessels of war as are usually built ; but as the

whole battery comes below water, and may be several feet below, the vessel above the water-line may be made five, six, or more feet thick, of pine logs or other wood, of hay or cotton or old rope or cabbage-tree, or any kind of material which will be bullet-proof. Thus all the men will be out of danger, as in the drawing.

Cannon may be placed in the bow of a vessel, near the keel as in drawing, or suspended over the bow or sides as in drawings, and be fired with water-proof locks, constructed for common or fulminating powder. Various other modes of practice may be devised ; but the whole merit of this invention consists in having discovered and proved that cannon can be fired to greater advantage for the destruction or annoyance of an enemy, when so placed that the muzzle shall be under water, and the ball pass through water for the whole or greater part of the space it has to go till it strikes the enemy. The practice then will be with strong bullet-proof vessels to run alongside of an enemy within thirty, twenty, or ten feet, give her a broadside of one, two, three, four, or more heavy pieces from thirty-two to one-hundred pounders, from four to twelve or fifteen feet below the water-line, and retire. Of this whole system of firing cannon, carronades, columbiads, or ordnance of any kind *under water*, so as thus to attack an enemy to advantage, I claim to be the original inventor ; and claiming it as my right, I have deemed it sufficient to give one mechanical and practicable combination, — being improvements previous to further experiments. But any attempt to fire any kind of ordnance under

water in attacks on vessels of war, or maritime combat, will be considered a violation of my right and purvey of my invention.

(Signed)

ROBERT FULTON.

Fulton had been in America but a few weeks when he collected his papers and drawings and went to Washington, to urge upon the Government his plan for torpedo and submarine warfare. He secured a small appropriation, returned to New York, set up his apparatus on Governor's Island, and prepared to explain it to the representatives of the army and navy, and such others as were interested in the subject. He carried out a series of experimental demonstrations of the value of his inventions, in the course of which he blew up a vessel provided by the Government for the purpose, in the harbour of New York, and completely annihilated it, or, as Fulton himself said, "*decomposed*" it.

Descriptions of his inventions and of his experiments were, a little later, published by Fulton, in his "Torpedo War," a book addressed to the President of the United States and Members of Congress. The result was that Congress passed an act permitting the extension of these experiments, and for some years after this date (1810), in fact up to the time of his death, Fulton was engaged intermittently in the prosecution of his studies, and in experiments in this direction. A commission was appointed to witness and report on his work, and Government continued its interest in the subject to the end.

Reigart says that Chancellor Livingston, after a long examination of each particular subject which the experiments had suggested, expressed himself as follows : —

“Upon the whole, I view this application of powder as one of the most important military discoveries which some centuries have produced. It appears to me to be capable of effecting the absolute security of your ports against naval aggression, provided that, in conjunction with it, the usual means necessary to occupy the attention of the enemy are not neglected.”

The reports were forwarded to the Secretary of the Navy by Mr. Fulton, with a letter from himself. His buoyant mind was never to be depressed. He gives his own views of the experiments, and writes with increased confidence in his ultimate success. He expresses himself satisfied with the report of the committee, and thinks their opinions were as favourable to the infant art as, under the circumstances, could have been expected. It is due to Mr. Fulton to give some extracts from this letter. He says : —

“It is proved and admitted, first, that the water-proof locks will ignite gunpowder under water ; secondly, it is proved that seventy pounds of powder, exploded under the bottom of a vessel of two hundred tons, will blow her up ; hence it is admitted, that if a sufficient quantity of powder — and which I believe need not be more than two hundred pounds — be ignited under the bottom of a first-rate man-of-war, it would instantly destroy her ; thirdly, it is proved and admitted by all parties concerned in the

experiments, that a gun can be fired under water, and that a cable of any size can be cut by that means, at any required depth. With these immediately important principles proved and admitted, the question naturally occurs, whether there be, within the genius or inventive faculties of man, the means of placing a torpedo under a ship in defiance of her powers of resistance. He who says that there is not, and that consequently torpedoes never can be rendered useful, must of course believe that he has penetrated to the limits of man's inventive powers, and that he has contemplated all the combinations and arrangements which present or future ingenuity can devise to place a torpedo under a ship. I will do justice to the talents of Commodore Rodgers. The nets, booms, kentledge, and grapnels which he arranged around the 'Argus' made a formidable appearance against one torpedo boat and eight bad oarsmen. I was taken unawares. I had explained to the officers of the navy my means of attack; they did not inform me of their means of defence. The nets were put down to the ground; otherwise I should have sent the torpedoes under them. In this situation, the means I was provided with being imperfect, insignificant, and inadequate to the effect to be produced, I might be compared to what the inventor of gunpowder would have appeared, had he lived in the time of Julius Cæsar, and presented himself before the gates of Rome with a four-pounder, and had endeavoured to convince the Roman people that by means of such machines he could batter down their walls. **They**

would have told him that a few catapultas, casting arrows and stones upon his men, would cause them to retreat; that a shower of rain would destroy his ill-guarded powder; and the Roman centurions, who would have been unable to conceive the various modes in which gunpowder has since been used to destroy the then art of war, would very naturally conclude that it was an useless invention; while the manufacturers of catapultas, bows, arrows, and shields, would be the most vehement against further experiments. I had not one man instructed in the use of the machines, nor had I time to reflect on this mode of defending a vessel. I have now, however, had time; and I feel confident that I have discovered a means which will render nets to the ground, booms, kentledge, grapnel, oars with sword-blades, through the port-holes, and all such kinds of operations, totally useless."

The day after this most striking experiment, Mr. Fulton addressed a letter to the governor, and the mayor, and members of the corporation of New York, from which the following are extracts:—

"Yesterday my desire to satisfy public curiosity at the stated minute was as great as my never-ceasing anxiety to see our harbours and coast placed beyond the power of foreign insults, and I lament exceedingly that numbers were disappointed by the explosion not taking on the first attack, but it has given me much additional confidence in my engines.

"On taking the torpedoes out of the water, where they had been for two hours, I found the locks and

powder perfectly dry. I immediately discovered the cause of the failure, which I corrected by placing a piece of quick-match in the charge which the lock contained. Thus arranged, the fire was communicated to the seventy pounds of powder in the body of the torpedoes, an explosion took place, and the brig was decomposed.

“You have now seen the effect of the explosion of powder under the bottom of a vessel; and this, I believe, is the best and most simple mode of using it with the greatest effect in marine wars; for a right application of one torpedo will annihilate a ship, nor leave a man to relate the dreadful catastrophe. Thus, should a ship-of-the-line, containing five hundred men, contend with ten good row-boats, each with a torpedo and ten men, she would risk total annihilation, while the boats under the cover of the night, and quick movements, would risk only a few men out of a hundred.

“When two ships of equal force engage, it may be doubtful which will gain the victory. Frequently one hundred men are killed on each side, as many wounded, and the ships much injured; but even the vanquished vessels will admit of being repaired, and thus the number of ships-of-war is not diminished, but continue to increase and tyrannize over the rights of neutrals and peaceable nations.

“Having now clearly demonstrated the great effect of explosion under water, it is easy to conceive that by organization and practice the application of the torpedoes will, like every other art, progress in per-

fection. Little difficulties and errors will occur in the commencement, as has been the case in all new inventions ; but where there is little expense, so little risk, and so much to be gained, it is worthy of consideration whether this system should not have a fair trial. Gunpowder, within the last three hundred years, has totally changed the art of war, and all my reflections have led me to believe that this application of it will in a few years put a stop to maritime wars, give that liberty of the seas which has been long and anxiously desired by every good man, and secure to America that liberty of commerce, tranquillity, and independence, which will enable her citizens to apply their mental and corporeal faculties to useful and humane pursuits, to the improvement of our country, and the happiness of the whole people."

Colden describes one of these schemes as almost the last work in which the active and ingenious mind of Mr. Fulton was engaged. This was a project for the modification of his submarine boat. "He had contrived a vessel which was to have a capacity, by means of an air-chamber like that which was in his 'Nautilus,' to be kept at a greater or less depth in the water, but so that her deck should not be submerged. That chamber communicated with the water, and was shaped like a diving-bell ; but it could at pleasure, by an air-pump, be exhausted of air, and then it would, of course, fill with water ; or any requisite quantity of air could be forced into it, so as to expel the water from it entirely. The sides of the vessel were to be of the ordinary thickness, but her

deck was to be stout and plated with iron, so as to render it ball-proof, which would not require so much strength as might be at first imagined, because, as no shot could strike it from a vessel but at a very great angle, the ball would ricochet on a slight resistance from a hard substance. She was to be of a size capable of sheltering a hundred men under her deck, and was to be moved by a wheel placed in another air-chamber near the stern, so that when the vessel was to be propelled only a part of the under paddles should be in water; at least, the upper half of the wheel, or more, moving in air. The wheel was to be turned by a crank attached to a shaft, that should penetrate the stern to the air-chamber through a stuffing-box, and run along the middle of the boat until it approaches her bows. Through this shaft rungs were to be passed, of which the crew were to take hold as they were seated upon each side of it on benches. By merely pushing the shaft backward and forward the water-wheel would be turned, and the boat be propelled with a velocity equal to the force of a hundred men. By means of the air-chamber, she was to be kept, when not in hostile action, upon the surface, as common boats are; but when in reach of an enemy she was to sink, so that nothing but her deck would be exposed to his view or to his fire. Her motion when in this situation would be perfectly silent, and therefore he called this contrivance a mute. His design was that she should approach an enemy, which he supposed she might do in fogs or in the night, without being heard or discovered, and

do execution by means of his torpedoes or submarine guns. He presented a model of this vessel to the Government, by which it was approved ; and under the authority of the Executive he commenced building one in this port ; but before the hull was entirely finished, his country had to lament his death, and the mechanics he had employed were incapable of proceeding without him.”¹

¹ Colden's Life of Fulton, p. 233.

VI.

FULTON'S EXPERIMENTS WITH STEAM. — THE
"CLERMONT."

IN the opening chapter of this book we have traced the progress of invention in the applications of steam, especially in the direction of its use in navigation, and have seen how the minds of all great philosophers and mechanics were turning toward the solution of this now visible and almost imperative problem. It has been seen that, before Fulton's experiments were begun, a number of inventors on both sides of the Atlantic were engaged in the work, and that some progress had been made ; so much, in fact, that the outcome could hardly be doubted. Papin had, early in the eighteenth century, as we have seen, actually built a steamboat ; Jonathan Hulls, in 1737, secured British patents on another form ; William Henry had put his little boat on the Conastoga River in 1763 ; the Comte d'Auxiron had launched a steamer on French waters in 1774 ; ten years later Oliver Evans and James Rumsey came forward with their peculiar systems of propulsion ; John Fitch appeared at about the same date, 1785, building a number of boats, and succeeding, apparently, in attaining seven miles an hour in his boat of 1790, and making a total of several thousands of miles in its regular work as a

passenger boat between Philadelphia and Bordentown, Pennsylvania. Fitch's screw-boat, built forty-five years after Bernouilli had written his prize-essay suggesting the use of the "spiral oar," — as James Watt called it when proposing it, independently, about 1784, — was sufficiently satisfactory, as proving the practicability of the device, when tried on Collect Pond, in New York City, in 1796. His contemporary in France, the Marquis de Jouffroy, had built two steamers on the Rhone, in 1781-1783; and in Scotland, Miller, Taylor, and Symmington had almost succeeded, their efforts finally resulting in a real success, in 1801, when the Charlotte Dundas was built as a "stern-wheeler" on the Forth and Clyde Canal. Samuel Morey had put a little steamer on the Connecticut in 1790, and many other mechanics and inventors were busy in the same work by the time Fulton had reached that problem, among whom were two of Fulton's own later friends — Livingston and Roosevelt, — and his most enterprising rival, John Stevens, the four working together to build a boat on the Passaic River in 1798. Fulton had, as early as 1798, proposed plans for steam-vessels to both the United States and British governments.¹ He had been too busy with his other schemes to pay much attention to this until satisfied that he was to expect nothing from the former.

Fulton's experiments began while he was in Paris, and may have been stimulated by his acquaintance with Chancellor Livingston, who held the monopoly,

¹ History of the Steam-Engine, R. H. Thurston; Life of Fulton, Colden.

offered by the legislature of the State of New York, for the navigation of the Hudson River, to be accorded to the beneficiary when he should make a successful voyage by steam. Livingston was now ambassador of the United States to the Court of France, and had become interested in the young artist-engineer, meeting him, presumably, at the house of his friend Barlow. It was determined to try the experiment at once, and on the Seine.

The giving of monopolies in the form here alluded to was, in those days, before the introduction of the modern systems of patent-law, a very common method of securing to inventors their full reward. John Fitch had been given a monopoly of this kind by the United States government for a period of fourteen years from March 19, 1787; which monopoly was later (1798) repealed by Congress; this repeal being, in turn, denied by the courts, March 13, 1798, and subsequently continued to June 1, 1819, meantime being transferred to Nicholas J. Roosevelt. The State Act in favour of Livingston was passed to take effect April 5, 1803, and was repealed as unconstitutional, and conflicting with the jurisdiction of the United States, June 17, 1817. The whole system went out of use at the latter date, as it was found to be dangerous and troublesome, and on the whole far inferior to that admirable patent-system which succeeded it, and which has done so much to promote the marvellous prosperity of the country since the first quarter of the nineteenth century.

Fulton went to Plombières in the spring of 1802,

and there made his drawings and completed his plans for the construction of his first steamboat. Many attempts had been made, as we have seen, and many inventors were at work contemporaneously with him. Every modern device, — the jet-system, the “chaplet” of buckets on an endless chain or rope, the paddle-wheel, and even the screw-propeller — had been already proposed, and all were familiar to the well-read man of science of the day. Indeed, as Mr. Benjamin H. Latrobe, a distinguished engineer of the time, wrote in a paper presented May 20, 1803, to the Philadelphia Society, “A sort of mania began to prevail” for propelling boats by means of steam-engines. Fulton was one of those taking this mania most seriously. He made a number of models which worked successfully, and justified the proprietors of the new arrangement in building on a larger scale. A model of the proposed steamboat was made during the year 1802, and was presented to the committee of the French legislature with the note of which a copy is given below. This latter document was discovered in the following manner, as described by “*La Nature*” in 1880: —

Jacques de Vaucanson, the French mechanician, was born in Grenoble, Feb. 24, 1709, and died in Paris, Nov. 21, 1782. He studied mechanics and anatomy for several years. The statue of the Flute-Player in the gardens of the Tuileries first suggested to him the project of making an automaton player, and he acquired great celebrity by works of this class. Cardinal Fleury appointed him inspector

of silk manufactures; and in consequence of his improvements in machinery he was attacked by the workmen of Lyons. He retaliated by constructing an automaton ass weaving flowered silks. He bequeathed his collection to the queen, who gave it to the Academie des Sciences. It was afterward scattered, in consequence of a contest with the mercantile authorities for the possession of the manufacturing machinery. His portfolio, containing drawings and documents of great historical value, is now in possession of the Conservatoire des Arts et Métiers, at Paris. One of the most valuable things in the collection is Fulton's design for his first steamboat, accompanied by an autograph letter:—

PARIS, 4 Pluviose, Year II (1803).

ROBERT FULTON TO CITIZENS MOLAR, BANDELL,
AND MONTGOLFIER.

FRIENDS OF THE ARTS,—I send you herewith drawings sketched from a machine that I have constructed, and with which I purpose soon to make experiments in causing boats to move on rivers by the aid of fire-pumps (*pompes-à-feu*). My first aim, in occupying myself with this idea, was to put it in practice on the long rivers of America, where there are no tow-paths, and where these would scarcely be practicable, and where, consequently, the expenses of navigation by steam would be placed in comparison with that of manual labour, and not with that of horse-power, as in France.

In these drawings you will find nothing new, since

they are only [those of] water-wheels, — a method which has been often tried, and always abandoned because it was believed that a purchase could not be thereby obtained in the water. But after the experiments that I have made, I am convinced that the fault has not been in the wheel, but in ignorance of proportions, velocities, powers, and probably mechanical combinations. . . . Citizens, when my experiments are ready, I shall have the pleasure of inviting you to witness them; and if they succeed, I reserve to myself the privilege of either making a present of my labours to the Republic, or deriving therefrom the advantages which the law authorizes. At present, I place these notes in your hands, so that if a like project should reach you before my experiments are finished, it may not have preference over my own.

Respectfully,

ROBERT FULTON.

The drawings alluded to included that here shown, which has been reduced from the original, which is still safely preserved in Paris. As will be seen later, the general character of the vessel is that subsequently made so successful in America, and the form of the engine is precisely that of the later "Clermont."

Fulton seems to have been considered, even at this early day, an authority on the subject of steam-navigation. Admiral Preble, in his *History of Steam Navigation*, (p. 35) quotes the following letter to a friend, written after his work on his own scheme for that season was over:—

PARIS, the 20th of Sept., 1802.

TO MR. FULNER SKIPWITH.

SIR, — The expense of a patent in France is 300 livres for three years, 800 ditto for ten years, and 1,500 ditto for fifteen years. There can be no difficulty in obtaining a patent for the mode of propelling a boat which you have shown me; but if the author of the model wishes to be assured of the merits of his

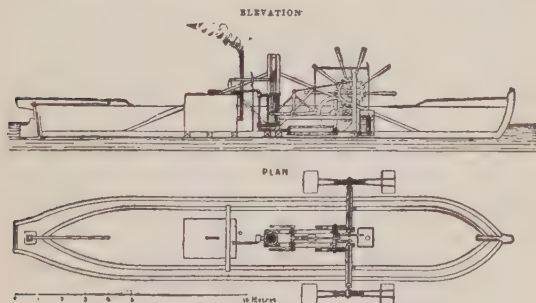


Fig. 7. — Fulton's First Steamboat.

invention before he goes to the expense of a patent, I advise him to make the model of a boat in which he can place a clock-spring, which will give about eight revolutions. He can then combine the movements so as to try oars, paddles, and the leaves which he proposes. If he finds that the leaves drive the boat a greater distance in the same time than either oars or paddles, they consequently are a better application of power. About eight years ago, the Earl of Stanhope tried an experiment on similar leaves, wheels, oars, and paddles, and flyers similar to those

of a smoke-jack, and found oars to be the best. The velocity with which a boat moves is in proportion as the sum of the surfaces of the oars, paddles, leaves, or other machine is to the bow of the boat presented to the water, and in proportion to the power with which such machinery is put in motion. Hence, if the use of the surfaces of the oars is equal to the sum of the surfaces of the leaves, and they pass through similar curves in the same time, the effect must be the same. But oars have their advantage; they return through air to make a second stroke, and hence create very little resistance; whereas the leaves return through water, and add considerably to the resistance, which resistance is increased as the velocity of the boat is augmented. No kind of machinery can create power. All that can be done is to apply the manual or other power to the best advantage. If the author of the model is fond of mechanics, he will be much amused, and not lose his time, by trying the experiments in the manner I propose; and this perhaps is the most prudent measure, before a patent is taken. I am, sir, with much respect,

Yours,

ROBERT FULTON.

At this time the inventors had taken up the problem, as we have seen, and several had been, during the preceding twenty years, working with more or less success to secure what every statesman of the period saw would be ultimately a step toward the attainment of that great aim of Fulton, the commercial freedom of the seas. As early as 1794, Lord Stanhope

addressed a letter to Wilberforce on the question of peace or war, likely, he thought to be brought under discussion on the meeting of Parliament. In this letter he speculates on the possible resources of France, and hints that England is not invulnerable. He says:—

“This country [Great Britain] is vulnerable in so many ways, the picture is horrid. By my letter I will say nothing on that subject. One instance, I will, however, state, because it is information you cannot, as yet, receive from any other quarter; though in two or three months from the date of this letter the fact will be fully established, and you may then hear it from others. The thing I allude to is of peculiar importance. The fact is this: I know (and in a few weeks shall prove) that ships of any size, and for certain reasons the larger the better, may be navigated in any narrow or other sea, without sails (though occasionally with), but so as to go without wind, and even directly against both wind and waves. The consequences I draw are as follows: First, that all the principal reasons against the French having the ports of Ostend, etc., cease, inasmuch as a French fleet composed of ships of the above-mentioned description, would come out at all times from Cherbourg, Dunkirk, etc., as well as from Ostend, etc., and appear in the same seas. The water, even at Dunkirk, will be amply deep enough for the purposes of having them there. The French having Ostend, ought not, therefore, under this new revolution in naval affairs, — for it would be a complete revolution, — to be a bar to peace.

Under the old nautical system, naval men might have reasoned differently on that subject. But the most important consequence which I draw from this stupendous fact mentioned at the top of this page is this ; namely, that *it will shortly render all the existing navies of the world (I mean military navies) no better than lumber.* For what can ships do that are dependent upon wind and weather against fleets wholly independent of either ? Therefore the boasted superiority of the English navy is no more ! We must have a new one. The French and other nations will, for the same reasons, have their new ones.”¹

The apprehension of Stanhope was the hope of Fulton ; but neither the hope nor the apprehension has as yet been verified. The introduction of steam-navigation became a success ; but that success came so slowly as to permit all nations to avail themselves of it, and none sooner or more completely than the two most active in the production of this revolution, — Great Britain and the United States. The British navy became a steam-navy, and the other nations of the world followed her lead ; so that the strife of the century, at sea, has been a struggle between, and for, steam-fleets. In this direction, the introduction of steam has resulted in the increased expenditure of money on fleets in such enormous amounts as to tax the people to the very limit of their endurance ; while the relative order in naval power of the greater nations has been comparatively little altered.

¹ Preble, p. 28.

With the encouragement of Chancellor Livingston, who urged upon Fulton the importance of the introduction of steam-navigation into their native country, the latter continued his experimental work. Their boat was finished and set afloat on the Seine in 1803, in the early spring. Its proportions had been deter-

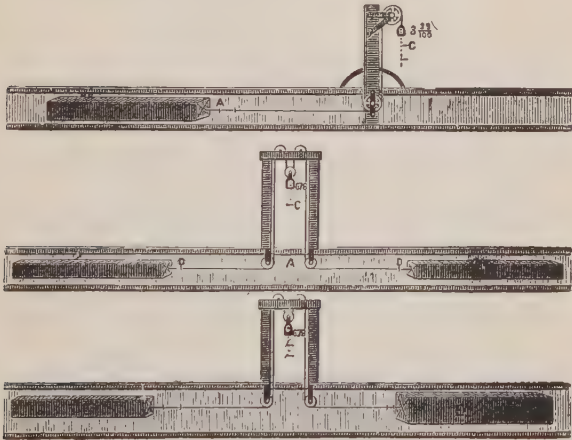


Fig. 8. — Fulton's Experiments.

mined by careful computation from the results of no less careful experiment on the resistance of fluids and the power required for propelling vessels; and its speed was, therefore, more nearly in accord with the expectations and promises of the inventor than was the usual experience in those days.

The Author has examined a collection of Fulton's sketches of these plans, including chaplet, side-

wheel and stern-wheel boats, driven by various forms of steam-engine, some working direct, and some geared to the paddle-wheel shaft. Figure 8 is engraved from these sheets. It represents the method adopted by Fulton to determine the resistance of various forms and proportions of bodies towed through water. Figure 9 is "A Table of the resistance of

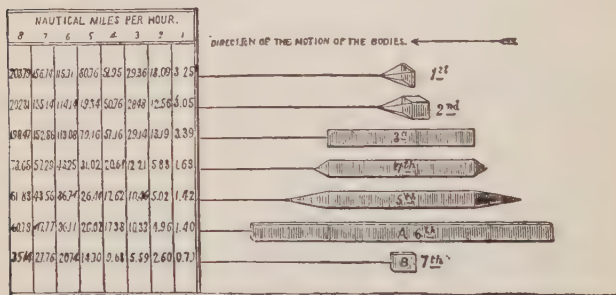


Fig. 9. — Fulton's Table of Resistances.

bodies moved through water, taken from experiments made in England by a society for improving Naval architecture, between the years 1793 and 1798." This is from a certified copy of "The Original Drawing on file in the Office of the Clerk of the New York District, making a part of the Demonstration of the patent granted to Robert Fulton, Esqr., on the 11th day of February, 1809. Dated this 3rd March, 1814."

Guided by these experiments and calculations, therefore, Fulton directed the construction of his vessel. The hull was sixty-six feet long, of eight feet

beam, and of light draught. But unfortunately the hull was too weak for its machinery, and it broke in two and sank to the bottom of the Seine. Fulton at once set about repairing damages. He was compelled to direct the rebuilding of the hull, but the machinery was but slightly injured. In June, 1803, the reconstruction was complete, and the vessel was set afloat in July.

August 9, 1803, this boat was cast loose in presence of an immense concourse of spectators, including a committee of the National Academy, consisting of Bougainville, Bossuet, Carnot, and Pérrier. The boat moved but slowly, making only between three and four miles an hour against the current, the speed through the water being about $4\frac{1}{2}$ miles; but this was, all things considered, a great success.

The experiment attracted little attention, notwithstanding the fact that its success had been witnessed by the committee of the Academy and by officers on Napoleon's staff. The boat remained a long time on the Seine, near the palace. The water-tube boiler of this vessel (Figure 10) is still preserved at the Conservatoire des Arts et Métiers at Paris, where it is known as Barlow's boiler. Barlow patented it in France as early as 1793, as a steamboat-boiler, and states that the object of his construction was to obtain the greatest possible extent of heating-surface.

Fulton endeavoured to secure the pecuniary aid and the countenance of the First Consul, but in vain.

Livingston wrote home, describing the trial and its

results, and procured the passage of an Act by the legislature of the State of New York, extending, nominally to Fulton, a monopoly granted the former in 1798 for the term of twenty years from April 5, 1803, — the date of the new law, — and extending the time allowed for proving the practicability of driving a boat four miles an hour by steam to two years from the same date. A later act further extended the time to April, 1807.

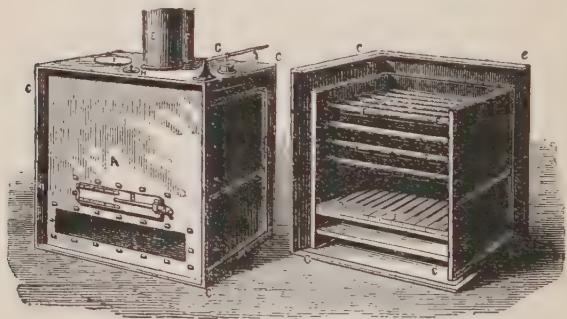


Fig. 10. — Barlow's Water-Tube Boiler, 1793.

In May, 1804, Fulton went to England, giving up all hope of success in France with either his steam-boats or his torpedoes, and the chapter of his work in Europe practically ends here. He had already written to Boulton & Watt, ordering an engine to be built from plans which he furnished them; but he had not informed them of the purpose to which it was to be applied. This engine¹ was to have a steam-

¹ Thurston's History of the Steam-Engine, p. 256.

cylinder two feet in diameter and of four feet stroke. Its form and proportions were substantially those of the boat-engine of 1803.

Meantime, the opening of the century had been distinguished by the beginning of work in the same direction by the most active and energetic among Fulton's later rivals. This was Col. John Stevens of Hoboken, who, assisted by his son, Robert L. Stevens, was earnestly engaged in the attempt to seize the prize now so evidently almost within the grasp. This younger Stevens was he of whom the great naval architect and engineer, John Scott Russell, afterward remarked: "He is probably the man to whom, of all others, America owes the greatest share of its present highly improved steam-navigation."¹ The father and son worked together for years after Fulton had demonstrated the possibility of reaching the desired end, in the improvement of the hulls and machinery of the river steamboat, until in their hands, and especially in those of the son, the now familiar system of construction in all its essentials was developed. The elder Stevens, as early as 1789, evidently had seen what was in prospect, and had petitioned the legislature of the State of New York for a grant similar to that actually accorded Livingston, later; and he had certainly, at that time, formed plans for the application of steam-power to navigation. The records show that he was at work on construction as early, at least, as 1791. The following is a brief state-

¹ *Steam and Steam-Navigation*, J. S. Russell, Edinburgh, 1841.

ment of his work, mainly as elsewhere given by the Author.¹

In 1804 Stevens completed a steamboat sixty-eight feet long and of fourteen feet beam. Its boiler (Figure 11) was of the water-tubular variety. It con-

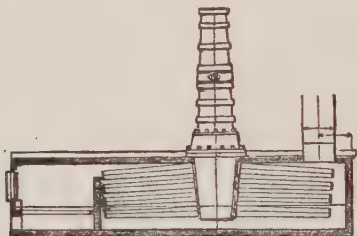


Fig. 11. — Section of Steam-Boiler, 1804.

tained one hundred tubes, two inches in diameter and eighteen inches long, fastened at one end to a central water-leg and steam-drum. The flames from the furnace passed among the tubes, the water being inside.



Fig. 12. — Engine, Boiler, and Screw-Propellers, used by Stevens, 1804.

The engine (Figure 12) was *direct-acting high-pressure* condensing, having a 10-inch cylinder, two feet stroke

¹ History of the Growth of the Steam-Engine, p. 264.

of piston, and driving a well-shaped *screw*, with four blades.

This machinery, — the high-pressure condensing engine, with rotating valves, and *twin* screw-propellers, — as rebuilt in 1805, is still preserved. The hub and blade of a single screw, also used with the same machinery in 1804, is likewise extant.

Stevens's eldest son, John Cox Stevens, was in Great Britain in the year 1805, and while there patented a modification of this sectional boiler. In his

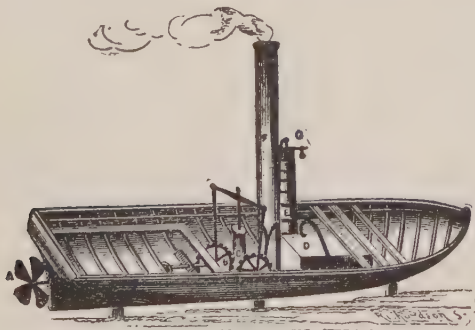


Fig. 13. — Stevens's Screw-Steamer, 1804.

specification he says that he describes this invention as it was made known to him by his father, and adds :

“ From a series of experiments made in France, in 1790, by M. Belamour, under the auspices of the Royal Academy of Sciences, it has been found that, within a certain range, the elasticity of steam is nearly doubled by every addition of temperature equal to 30° of Fahrenheit's thermometer. These experi-

ments were carried no higher than 280° , at which temperature the elasticity of steam was found equal to about four times the pressure of the atmosphere. By experiments which have lately been made by myself, the elasticity of steam at the temperature of boiling oil, which has been estimated at about 600° , was found to equal forty times the pressure of the atmosphere.

“To the discovery of this principle or law, which obtains when water assumes a state of vapour, I certainly can lay no claim; but to the application of it, upon certain principles, to the improvement of the steam-engine, I do claim exclusive right.

“It is obvious that, to derive advantage from an application of this principle, it is absolutely necessary that the vessel or vessels for generating steam should have strength sufficient to withstand the great pressure from an increase of elasticity in the steam; but this pressure is increased or diminished in proportion to the capacity of the containing vessel. The principle, then, of this invention consists in forming a boiler by means of a system, or combination, of a number of small vessels, instead of using, as in the usual mode, one large one, the relative strength of the materials of which these vessels are composed increasing in proportion to the diminution of capacity. It will readily occur that there are an infinite variety of possible modes of effecting such combinations; but, from the nature of the case, there are certain limits beyond which it becomes impracticable to carry on improvement. In the boiler I am about to describe, I apprehend that the improvement is carried to the

utmost extent of which the principle is capable. Suppose a plate of brass of one foot square, in which a number of holes are perforated, into each of which holes is fixed one end of a copper tube, of about an inch in diameter and two feet long, and the other ends of these tubes inserted in like manner into a similar piece of brass; the tubes, to insure their tightness, to be cast in the plates; these plates are to be inclosed at each end of the pipes by a strong cap of cast-iron or brass, so as to leave a space of an inch or two between the plates or ends of the pipes and the cast-iron cap at each end; the caps at each end are to be fastened by screw-bolts passing through them into the plates; the necessary supply of water is to be injected by means of a forcing-pump into the cap at one end, and through a tube inserted into the cap at the other end the steam is to be conveyed to the cylinder of the steam-engine; the whole is then to be encircled in brick-work or masonry in the usual manner, placed either horizontally or perpendicularly, at option.

"I conceive that the boiler above described embraces the most eligible mode of applying the principle before mentioned, and that it is unnecessary to give descriptions of the variations in form and construction that may be adopted, especially as these forms may be diversified in many different modes."

Boilers of the character of those described in this specification were used on a locomotive built by John Stevens, in 1824-1825.

The use of a high-pressure sectional boiler seventy

years ago is more remarkable than the adoption of the screw-propeller thirty years before the screw came into general use.

Colonel Stevens designed a form of iron-clad in the year 1812, since reproduced by the late John Elder, of Glasgow, Scotland. It consisted of a saucer-shaped hull, plated with iron of ample thickness to resist the shot fired from the heaviest ordnance then known. This vessel was to be secured to a swivel, and anchored in the channel to be defended.



Fig. 14. — Stevens's Twin-Screw Steamer, 1805.

A set of screw-propellers, driven by steam-engines, and situated beneath the vessel, were arranged to permit the vessel to be rapidly revolved about its centre, working thus on the principle of the "turret" of Timby and Ericsson. As each gun came into line it was discharged, and then reloaded before coming around again. This, the first iron-clad ever designed, has recently been again brought out and introduced into the Russian navy, and called the "Popoffska."

Stevens next built a boat which he named the "Phoenix," and made the first trial in 1807, just too

late to anticipate Fulton. This boat was driven by paddle-wheels.

Stevens, being shut out of the rivers of the State of New York by the monopoly held by Fulton and Livingston, ran the "Phoenix" for a time between New York Bay and New Brunswick, and on the Delaware.

At that time no canal existed, and in June, 1808, Robert L. Stevens started to make the passage by sea. Although meeting a gale of wind, he arrived at Philadelphia safely, having been the first to make a sea voyage by steam-power.

From this time forward the Stevenses continued to construct steam-vessels, and, later, built the most successful steamboats on the Hudson River.

Before recurring to the work of Fulton, a few more paragraphs may be devoted to Stevens.¹

Col. John Stevens, of Hoboken, was the greatest professional engineer and naval architect living at the beginning of the present century. Without having made any improvement in the steam-engine, like that which gave Watt his fame ; without being the first to propose navigation by steam, or steam-transportation on land, he exhibited a better knowledge of engineering than any man of his time, and entertained and urged more advanced opinions, and more statesman-like views, in relation to the economical importance of the improvement of the steam-engine, both on land and water, than seem to have been attributable to any other leading engineer of that time, not excepting Robert Fulton.

¹ See a paper by the Author, "The Messrs. Stevens, as Engineers," etc. ; Journal of the Franklin Institute, Oct., 1874.

Dr. Charles King, then the distinguished President of the Columbia College, thus refers to the work of this great man.¹

“Mr. Stevens’s attention was first turned, or rather the bent of his genius was developed and directed toward mechanics and mechanical philosophy, by the accident of seeing in 1787 the early and, as now may be said, imperfect steamboat of John Fitch navigating the Delaware River. He was driving in his phaeton on the banks of the river when the mysterious craft, without sails or oars, passed by. Mr. Stevens’s interest was excited; he followed the boat to its landing, familiarized himself with the design and the details of this new and curious combination, and from that hour became a thoroughly excited and unwearied experimenter in the application of steam to locomotion on the water, and subsequently on the land.

“Having been brought by close family connection into intimacy with Robert R. Livingston (the Chancellor of this State, who married the sister of Colonel Stevens), he induced Mr. L. to join him in these investigations; and they were persevered in at great cost, and with little immediate success, till Chancellor Livingston, in 1801–1802, was sent as minister to France.

“So much, however, was the Chancellor encouraged by the experiments then made, that as early as 1798 he obtained from the legislature of New York an exclusive grant for the use of steam on the waters of New York. This, however, became forfeit by

¹ *Lecture on the Progress of the City of New York, 1843.*

the failure to avail within the limited time of its privileges.

"But previously to the Act of '98, the legislature of New York had, as early as 1787, granted to James Rumsey and to John Fitch the exclusive right to navigate the waters of the State with steam-propelled vessels; and on the 9th of January, 1789, John Stevens petitioned the legislature for a like grant, — nothing having resulted from the preceding ones. Mr. Stevens in his petition says that 'to the best of his knowledge and belief his scheme is altogether new, and does not interfere with the inventions of either of the other gentlemen who have applied to your honourable body for an exclusive right of navigating by means of steam.' The petitioner adds that he 'had made an exact draught of the different parts of his machine, which, with an explanation thereof, he is ready to exhibit.' The prayer of the petition was unsuccessful; but these draughts should be among the papers of the late Colonel Stevens, and at this day would be curious.

"Mr. Stevens, meanwhile, never renounced his experiments, nor despaired of success; and in 1804 he actually constructed a *propeller* (a small open boat, worked by steam), with such decided success that he was encouraged to go on and build the 'Phoenix' steamboat, on his own plan and model, and had her ready almost contemporaneously with, but a little after, the first steamboat of Fulton, the 'Clermont.' The success of the 'Clermont' entitled Mr. Fulton and Chancellor Livingston, who was co-operating with

Fulton, to the benefit of the law, which had been revived by the State of New York, granted a monopoly of the waters of the State, and thus Mr. Stevens's steamboat was excluded from those waters. On the Delaware, however, and on the Connecticut, he placed boats; and his eminent son, Robert L. Stevens, having embraced his father's views, was now at work with him to improve the known, and invent new resources for accelerated steam conveyance."

While Fulton was still abroad, John Fitch and Oliver Evans were pursuing a similar course of experiment, as were his contemporaries on the other side the Atlantic, and with more success. Fitch had made a number of fairly successful ventures, and had shown beyond question that the project of applying steam to ship-propulsion was a promising one; and he had only failed through lack of financial backing, and inability to appreciate the amount of power that must be employed to give his boats any considerable speed. Evans had made his "*Oruktor Amphibolis*," — a flat-bottomed vessel which he built at his works in Philadelphia, and impelled by its own engines, on wheels, to the bank of the Schuylkill, and then afloat, down the stream to its berth, by paddle-wheels driven by the same engines. Other inventors were working on both sides the ocean with apparently good reason to hope for success, and the times evidently were ripe for the man who should best combine all the requirements in a single experiment. The man to do this was Fulton.

He had made his own preliminary trials on the

Seine, and had there learned how to proceed to make a better steamer later ; he had undoubtedly kept himself informed of what was being done by his rivals in Great Britain, as in France and the United States, as well as the imperfect facilities for communication of the beginning of the nineteenth century permitted ; he had the natural talent of the inventor, the skill and training of the engineer, and was now backed by men of capital and sagacity, who had also that essential of final success, political power, and influence.

Fulton's experiments on the Seine so far encouraged him that, with the approval of Livingston, he immediately wrote to the firm of Boulton & Watt, in England, the builders of the engines of James Watt, then the junior member of the firm, and ordered an engine of which he gave them the dimensions and design, but which he did not inform them was to be used in steam-navigation. This engine was to be at once built and shipped to the United States, whither Fulton had decided to at once return. He himself went to England before returning to the United States, and, it is presumed, there saw the builders of his engine, and instructed them as to the details of its construction for adaptation to his purposes. It was very slowly constructed, however ; and it was not until about the time of his own arrival at New York that it was received and made ready for its work. The boat was finally built and fitted with these engines, and at the expense of Fulton himself, who could find no one at the time ready to assume a portion of the, to him, somewhat costly outfit. Living-

ston seems to have remained behind, and to have left the whole burden to be borne by Fulton.

Immediately on his arrival, in the winter of 1806-7, Fulton started on his boat, selecting Charles Brown as the builder, a well-known ship-builder of that time, and the builder of many of Fulton's later steam-vessels. The hull of this steamer, which was the first to establish a regular route and regular transportation of passengers and merchandise in America, — Fulton's first boat in his native country, — was 133 feet long, 18 feet beam, and 7 feet depth of hold. The engine was of 24 inches diameter of cylinder, 4 feet stroke of piston; and its boiler was 20 feet long, 7 feet high, and 8 feet wide. The tonnage was computed at 160. After its first season, its operation having satisfied all concerned of the promise of the venture, its hull was lengthened to 140 feet, and widened to 16½ feet, thus being completely rebuilt; while its engines were altered in a number of details, Fulton furnishing the drawings for the alterations. Two more boats, the "Raritan" and the "Car of Neptune" were added to form the fleet of 1807, and steam-navigation was at last fairly begun in America, some years in advance of its establishment in Europe. The Legislature were so much impressed with this result that they promptly extended the monopoly previously given Fulton and Livingston, adding five years for every boat to be built and set in operation, up to a maximum not to exceed a total of thirty years.

The "Clermont," as Fulton called this first boat, was begun in the winter of 1806-7, and launched in

the spring ; the machinery was at once put on board, and in August, 1807, the craft was ready for the trial-trip. The boat was promptly started on her proposed trip to Albany and made the run with perfect success. Fulton's own account is as follows : —

TO THE EDITOR OF THE "AMERICAN CITIZEN."

SIR, — I arrived this afternoon at four o'clock, in the steamboat from Albany. As the success of my experiment gives me great hopes that such boats may be rendered of great importance to my country, to prevent erroneous opinions and give some satisfaction to my friends of useful improvements, you will have the goodness to publish the following statement of facts : —

I left New York on Monday at one o'clock, and arrived at Clermont, the seat of Chancellor Livingston, at one o'clock on Tuesday : time, twenty-four hours ; distance, one hundred and ten miles. On Wednesday I departed from the Chancellor's at nine in the morning, and arrived at Albany at five in the afternoon : distance, forty miles ; time, eight hours. The sum is one hundred and fifty miles in thirty-two hours, — equal to near five miles an hour.

On Thursday, at nine o'clock in the morning, I left Albany, and arrived at the Chancellor's at six in the evening. I started from thence at seven, and arrived at New York at four in the afternoon : time, thirty hours ; space run through, one hundred and fifty miles, equal to five miles an hour. Throughout my whole way, both going and returning, the wind was ahead. No advantage could be derived from my

sails. The whole has therefore been performed by the power of the steam-engine.

I am, sir, your obedient servant,

ROBERT FULTON.

Fulton gives the following account of the same voyage in a letter to his friend, Mr. Barlow : —

“My steamboat voyage to Albany and back has turned out rather more favourably than I had calculated. The distance from New York to Albany is one hundred and fifty miles. I ran it up in thirty-two hours, and down in thirty. I had a light breeze against me the whole way, both going and coming, and the voyage has been performed wholly by the power of the steam-engine. I overtook many sloops and schooners beating to windward, and parted with them as if they had been at anchor.

“The power of propelling boats by steam is now fully proved. The morning I left New York, there were not perhaps thirty persons in the city who believed that the boat would ever move one mile an hour, or be of the least utility ; and while we were putting off from the wharf, which was crowded with spectators, I heard a number of sarcastic remarks. This is the way in which ignorant men compliment what they call philosophers and projectors.

“Having employed much time, money, and zeal in accomplishing this work, it gives me, as it will you, great pleasure to see it answer my expectations. It will give a cheap and quick conveyance to the merchandise on the Mississippi, Missouri, and other great rivers, which are now laying open their treasures to

the enterprise of our countrymen ; and, although the prospect of personal emolument has been some inducement to me, yet I feel infinitely more pleasure in reflecting on the immense advantage my country will derive from the invention,"¹ etc.

Professor Renwick, describing the "Clermont" of 1807 as she appeared on her first trip, says : "She was very unlike any of her successors, and very dissimilar from the shape in which she appeared a few months afterward. With a model resembling a Long Island skiff, she was decked for a short distance at stem and stern. The engine was open to view, and from the engine aft a house like that of a canal-boat was raised to cover the boiler and the apartment for the officers. There were no wheel-guards. The rudder was of the shape used in sailing-vessels, and moved by a tiller. The boiler was of the form then used in Watt's engines, and was set in masonry. The condenser was of the size used habitually in land engines, and stood, as was the practice in them, in a large cold-water cistern. The weight of the masonry and the great capacity of the cold-water cistern diminished very materially the buoyancy of the vessel. The rudder had so little power that she could hardly be managed. The skippers of the river craft, who at once saw that their business was doomed, took advantage of the unwieldiness of the vessel to run foul of her as soon as they thought they had the law on their side. Thus, in several instances, the steamer reached one or the other termini of the route with but a single wheel."

¹ Reigart, p. 173.

The "American Citizen" of August 17, 1807, says: —

"Mr. Fulton's ingenious steamboat, invented with a view to the navigation of the Mississippi, from New Orleans upward, sails to-day from the North River, near State's Prison, to Albany. The velocity of the steamboat is calculated at four miles an hour. It is said it will make a progress of two against the current



Fig. 15. — The "Clermont," 1807.

of the Mississippi, and if so it will certainly be a very valuable acquisition to the commerce of Western States."

What would this sanguine editor have thought, had he been assured that the "Clermont" was the pioneer of a fleet that should include steamships of ten thousand tons, or even — as the "Great Eastern," — of thirty thousand tons displacement; ships that should make a speed of twenty miles an hour at sea; small torpedo boats carrying out the idea of Fulton, and pursuing their enemy with their destructive little

weapons at speeds approaching thirty miles an hour; and river boats passing over the very route chosen for Fulton's first trial-trip at the speed of twenty-seven miles an hour, and at their "slow speeds," running from New York to Albany in ten hours or less? What would he have thought, had he dreamed of steaming from New York to Newport, to Fall River, or to Providence in ten to twelve hours? Of going from St. Louis to New Orleans in four days? Of crossing the Atlantic in six?

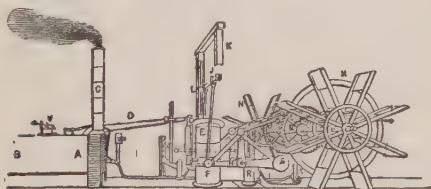


Fig. 16. — Engine of the "Clermont," 1808.

The engine of the "Clermont" (Figure 16), as already seen, was similar to that of Fulton's French boat, and of rather peculiar construction, the piston, *E*, being coupled to the crank-shaft, *O*, by a bell-crank, *I H P*, and a connecting-rod, *P Q*, the paddle-wheel shaft, *M N*, being separate from the crank-shaft, and connected with the latter by gearing, *O O*. The paddle-wheels had buckets four feet long, with a dip of two feet.

The voyage of the "Clermont" to Albany was attended by some ludicrous incidents. Mr. Colden says that she was described "as a monster, moving

on the waters, defying wind and tide, and breathing flames and smoke."

This boat used dry pine wood for fuel, and the flames rose to a considerable distance above the smoke-pipe ; and mingled smoke and sparks rose high in the air. "This uncommon light first attracted the attention of the crews of other vessels. Notwithstanding the wind and tide were averse to its approach, they saw with astonishment that it was rapidly coming toward them ; and when it came so near that the noise of the machinery and paddles was heard, the crews (if what was said in the newspapers of the time be true) in some instances shrank beneath their decks from the terrific sight, and left their vessels to go on shore ; while others prostrated themselves, and besought Providence to protect them from the approach of the horrible monster which was marching on the tides, and lighting its path by the fires which it vomited."

Fulton used several of the now familiar features of the American river boat, and subsequently introduced others.

The success of the "*Clermont*" on the trial-trip was such that Fulton soon after advertised the vessel as a regular passenger boat between New York and Albany.

A newspaper-slip in the scrap-book of the Author has the following : —

"The traveller of to-day, as he goes on board the great steamboats '*St. John*' or '*Drew*,' can scarcely imagine the difference between such floating palaces

and the wee-bit punts on which our fathers were wafted sixty years ago. We may, however, get some idea of the sort of thing then in use by a perusal of the steamboat announcements of that time two of which are as follows:—

“September 2, 1807.

“The North River Steamboat will leave Pauler's Hook Ferry [now Jersey City] on Friday, the 4th of September, at 9 in the morning, and arrive at Albany on Saturday, at 9 in the afternoon. Provisions, good berths, and accommodations are provided.

“The charge to each passenger is as follows :

“To Newburg . .	dols. 3, time, 14 hours.
“Poughkeepsie .	“ 4, “ 17 “
“Esopus . . .	“ 5, “ 20 “
“Hudson . . .	“ 5½, “ 30 “
“Albany . . .	“ 7, “ 36 “

“For places, apply to William Vandervoort, No. 48 Courtlandt Street, on the corner of Greenwich Street.¹

“Mr. Fulton's new-invented Steamboat, which is fitted up in a neat style for passengers, and is intended to run from New York to Albany as a Packet, left here this morning with 90 passengers, against a strong head-wind. Notwithstanding which, it was judged she moved through the waters at the rate of six miles an hour.’”²

¹ Copy of an advertisement taken from the “Albany Gazette,” dated September, 1807.

² Extract from the “New York Evening Post,” dated October 2, 1807.

During the next winter the "Clermont" was repaired and enlarged, and in the summer of 1808 was again on the route to Albany; and, meantime, the two new steamboats, the "Raritan" and the "Car of Neptune," had been built. In the year 1811 Fulton built the "Paragon."

Fulton patented novel details in steam-engines and steam-vessels in 1811, and thus secured some valuable property, though by no means sufficient to insure control of his routes. This he retained for a few years; but up to 1812, at least, there were continual attempts to establish rival lines, and vessels of all kinds, driven by engines of all sorts, practicable and impracticable, were built or proposed by ambitious inventors and "grasping capitalists." In the winter of 1812 an injunction was obtained from the courts in such terms that a perpetual injunction could be served on all the opposition lines, and Fulton was for a brief period allowed to pursue his own course in peace. A number of boats were now built for the rapidly increasing traffic of the rivers of the United States, and he placed some even on the "Father of Waters," where he fulfilled the prediction of his unfortunate predecessor, Fitch, whose remains now lie quietly beside one of its tributaries.

The table presented on page 135, given by his first biographer, shows the number and the principal dimensions of the boats built by Fulton, or from his plans, including the last three, which, though built after his death, are the most satisfactory of all.

Steam-vessels built in the City of New-York, under the Direction and Superintendence of Robert Fulton, or according to his Plan.

NAMES.	By whom built.	Dimensions.			Boilers.			Engine.		Water wheel.			Tonnage.	When built.	Where employed.
		Length.	Depth.	Breadth.	Length.	Depth.	Breadth.	Cylinder.	Stroke.	Diameter.	Length of Bucket.	Dip.			
NORTH RIVER, or CLERMONT.	Charles Brown.	133	7	18	20	7	8	24	4	15	4	2	160	1806	Hudson River.
RARITAN.	Charles Brown.												120	1807	Raritan River.
CAR of NEPTUNE.	Charles Brown.	175	8	24	18	8	9	33	4.4	14	4	2.4	295	1807	Hudson River.
PARAGON.	Charles Brown.	173	9	27	21	10	9	32	4	16	4.4	2.6	331	1811	Hudson River.
FIRE FLY.	Charles Brown.	100	7	19	14	9	8	20	3.9	12.6	3.6	2	118	1812	From New-York to Newburgh.
JERSEY FERRY boat.	Charles Brown.	78	7	32	20	9	9	20	4	12	4	2		1812	Ferry Company.
RICHMOND.	Charles Brown.	153	10	29	21	10	9	33	4.4	15	4.9	2.6	370	1813	Hudson River.
WASHINGTON.	Charles Brown.	135	9	25	20	9	8	26	4	14	4	2.3	275	1813	Potomac River.
YORK FERRY boat.	Charles Brown.	78	7	32	20	9	9	20	4	12	4	2		1813	Ferry Company.
NASSAU FERRY boat	Charles Brown.	78.6	7	33	20	8	10	20	4.6	12	4	2		1813	Brooklyn Com'ry.
FULTON.	A. & N. Brown.	134	9	30	20.4	8	9	36	4	15	4.10	2.6	327	1813	L. I. Sound.
FULTON THE FIRST.	A. & N. Brown.	156	20	56	22	8	12	48	5	16	14	4	2475	1814	Navy Yard.
OLIVE BRANCH.	Noah Brown.	124	8	30										1816	Between N. Y. and New-Brunswick.
EMPEROR of RUSSIA.	Adam Brown.	134	9.6	30.6	has three			36	5	16	4.10	2.6	330	1816	Undetermined.
CHANCELLOR LIVINGSTON.	Henry Eckford.	156	10.6	34	26	10	12	40	5	18	5.10	3	526	1816	Hudson River.

"Steam," says the "Gentleman's Magazine" for December, 1809, "has been applied in America to the purpose of inland navigation with the greatest success. The passage boat between New York and Albany is one hundred and sixty feet long, and wide in proportion for accommodations, consisting of fifty-two berths, besides sofas, etc., for one hundred passengers; and the machine which moves her wheels is equal to the power of twenty-four horses, and is kept in motion by steam from a copper boiler eight or ten feet in length. Her route is a distance of one hundred and fifty miles, which she performs regularly twice a week, and sometimes in the short space of thirty-two hours." An amazing tale!

According to Colden, the last boat which was constructed under Mr. Fulton's directions, and according to drawings and plans furnished by him, is that which, in 1816, navigated the sound from New York to New Haven. She was of nearly four hundred tons burden, built of uncommon strength, and fitted up with all conveniences and great elegance. She was the first steamboat with a round bottom like a sea-going ship. This form was adopted, because, for a great part of the route, she would be as much exposed as on the ocean. It was therefore, necessary, to make her a good sea-boat. She passed daily, and at all times of the tide, the then dangerous strait of Hell-Gate where, for a mile, she frequently encountered a current running at the rate of five or six miles an hour. For some distance she had within a few yards, on each side, rocks and whirlpools which rivalled Scylla

and Charybdis, even as they are poetically described. This passage, previously to its being navigated by this steamer, was supposed to be impassable except at the change of the tide ; and many shipwrecks had been occasioned by a mistake in time. "The boat passing through these whirlpools with rapidity, while the angry waters foamed against her bows, and appeared to raise themselves in obstinate resistance to her passage, is a proud triumph of human ingenuity. The owners, as the highest tribute they had in their power to offer to his genius, and as an evidence of the gratitude they owed him, called her the "Fulton." ¹

A steam ferry-boat was built to ply between New York and Jersey City in 1812, and the next year two others, to connect with Brooklyn. These were "twin-boats" the two hulls being connected by a "bridge" or deck common to both. The Jersey ferry was crossed in fifteen minutes, the distance being a mile and a half. Fulton's boat carried, at one load, eight carriages, and about thirty horses, and still had room for three hundred or four hundred foot-passengers.

Fulton's description of one of these boats is as follows : —

"She is built of two boats, each ten feet beam, eighty feet long, and five feet deep in the hold ; which boats are distant from each other ten feet, confined by strong transverse beam-knees and diagonal traces, forming a deck thirty feet wide and eighty feet long. The propelling water-wheel is placed between the boats to prevent it from injury from ice and shocks on

¹ Colden's *Life of Fulton*, p. 190.

entering or approaching the dock. The whole of the machinery being placed between the two boats, leaves ten feet on the deck of each boat for carriages, horses and cattle, etc.; the other, having neat benches and covered with an awning, is for passengers, and there is also a passage and stairway to a neat cabin, which is fifty feet long and five feet clear from the floor to the beams, furnished with benches, and provided with a stove in winter. Although the two boats and space between them gives thirty feet beam, yet they present sharp bows to the water, and have only the resistance in the water of one boat of twenty beam. Both ends being alike, and each having a rudder, she never puts about.”¹

Meantime, the War of 1812 was in progress, and Fulton designed a steam vessel-of-war, which was then considered a wonderfully formidable craft. Fulton proposed to build a vessel capable of carrying a heavy battery, and of steaming four miles an hour. The ship was fitted with furnaces for red-hot shot, and some of her guns were to be discharged below the water-line. The estimated cost was \$320,000. The construction of the vessel was authorized by Congress in March, 1814; the keel was laid June 20, 1814, and the vessel was launched October 29 of the same year.

The “Fulton the First,” as she was called, was then considered an enormous vessel. The hull was double, 156 feet long, 56 feet wide, and 20 feet deep, measuring 2,475 tons. In May the ship was ready for her en-

¹ Preble, page 59.

gine, and in July was so far completed as to steam, on a trial-trip, to the ocean at Sandy Hook and back, 53 miles, in eight hours and twenty minutes. In September, with armament and stores on board, the ship made for sea and for battle; the same route was traversed, the vessel making $5\frac{1}{2}$ miles an hour. Her engine, having a steam-cylinder 48 inches in diameter and of 5 feet stroke of piston, was furnished with steam by a copper boiler 22 feet long, 12 feet wide, and 8 feet high, and turned a wheel, between the two hulls, 16 feet in diameter, with "buckets" 14 feet long, and a dip of 4 feet. The sides were 4 feet 10 inches thick, and her spar-deck was surrounded by musket-proof bulwarks. The armament consisted of 30 32-pounders, intended to discharge red-hot shot. There was one mast for each hull, fitted with lateen sails. Large pumps were carried, intended to throw streams of water on the decks of the enemy, with a view to disabling him by wetting his ordnance and ammunition. A submarine gun was to have been carried at each bow, to discharge shot weighing one hundred pounds, at a depth of ten feet below water.

This, for the time, tremendous engine-of-war was constructed in response to a demand from the citizens of New York for a means of harbour defence. They appointed what was called a Coast and Harbour Defence Committee; and this committee examined Fulton's plans, and called the attention of the General Government to them. The Government appointed a Board of Experts from among its most famous naval officers, including Commodore Decatur, Captains

Paul Jones, Evans, and Biddle, Commodore Perry, and Captains Warrington and Lewis. They reported unanimously in favour of the proposed construction, and set forth her advantages over all previously known forms of war-vessel. The citizens' committee offered to guarantee the expense of building the ship; and the construction was undertaken under the supervision of a committee appointed for the purpose, consisting of several then distinguished men, both military and naval. Congress authorized the building of coast-defence vessels by the President, in March, 1814, and Fulton at once started the work of construction, Messrs. Adam and Noah Brown building the hull, and the engines being placed on board and in working order within a year.

The death of Fulton took place in the year 1815, while in the height of his fame and of his usefulness. He had been called to Trenton, New Jersey, in January of that year, to give testimony before the State legislature in reference to the proposed repeal of laws which had interfered with the operation of the ferry-boats and other steam-vessels plying between the city of New York and the New Jersey shore. It happened that the weather was cold, he was exposed to its severity both at Trenton and, especially, crossing the Hudson River on his return, and took a cold from which he never recovered. He became apparently convalescent after a few days; but insisted on visiting the new steam-frigate too soon, to inspect work in progress there, and on his return home experienced a relapse, — his illness finally resulting in his death,

February 24, 1815. He left a wife (*née* Harriet Livingston) and four children, three of whom were daughters.

Robert Fulton died in the service of the United States government; and although engaged for years in devoting time and talents to the best interests of our country, still the public records show that the Government was indebted to his estate upwards of \$100,000 for moneys actually expended and services rendered by him, agreeably to contract.¹

When the legislature, then in session at Albany, heard of the death of Mr. Fulton, they expressed their sentiments of regret by resolving that the members of both houses should wear mourning for six weeks.

This is the only instance, according to Colden, up to that time, of such public testimonials of regret, esteem, and respect being offered on the death of a private citizen, who was only distinguished by his virtues, his genius, and his talents.

He was buried February 25, 1815. His funeral was attended by all the officers of the National and State governments then in the city, by the magistracy, the common council, a number of societies, and a greater number of citizens than had ever been collected on any similar occasion. When the procession began to move, and until it arrived at Trinity Church, minute-guns were fired from the steam-frigate and the Battery. His body is deposited in a vault belonging to the Livingston family.

¹ Reigart, p. 203.

Mr. Fulton is described as a tall man, about six feet in height, slender, but well proportioned. "Nature had made him a gentleman, and bestowed upon him ease and gracefulness." He had too much good sense to exhibit affectation, and confidence in his own worth and talents gave him a pleasing deportment in all companies. His features were strong and handsome; he had large dark eyes, a projecting brow, and features expressive of intelligence and thought; his disposition was mild yet lively, and he was fond of society. He conversed with energy, fluency, and correctness; and, owing more to experience and reflection than to books, he was often interesting in his originality.

In all his social relations he was kind, generous, and affectionate. His only use for money was to make it an aid to charity, hospitality, and the promotion of science. He was especially distinguished by constancy, industry, and that union of patience and persistence which overcame every difficulty.

Robert Fulton has never, even yet, received either in kind or degree the credit that is justly his due. Those members of the engineering profession who have become familiar with his work through the ordinary channels of information generally look upon him as a talented artist and fortunate amateur engineer, whose fancies led him into many strange vagaries, and whose enthusiastic advocacy of a new method of transportation — the success of which was already assured by the ingenuity and skill of James Watt, Oliver Evans, and John Fitch, and by the really

intelligent methods of those early professional engineers, the Messrs. Stevens—gave him the opportunity of grasping the prize of which Chancellor Livingston had secured the legal control. By such engineers as know only of his work on the Seine and the Hudson in the introduction of the steamboat, he is not considered as an inventor, but simply as one who profited by the inventions of others, and who, taking advantage of circumstances, and gaining credit which was not of right wholly his own, acquired a reputation vastly out of proportion to his real merits.

The layman, judging only from the popular traditions, and the incomplete historical accounts that have come to him, supposes Robert Fulton to have been the inventor of the steamboat, and on that ground regards him as one of the greatest mechanics and engineers that the world has seen.

The truth undoubtedly is, as we have now seen, that Fulton was not "the inventor of the steamboat," and that the reputation acquired by his successful introduction of steam-navigation is largely accidental, and is principally due to the possession, in company with Livingston, of a monopoly which drove from this most promising field those original and skilful engineers, Evans and the Stevenses. No one of the essential devices successfully used by Fulton in the "Clermont," his first North River steamboat, was new; and no one of them differed, to any great extent, from devices successfully adopted by earlier experimenters. Fulton's success was a commercial success purely. John Stevens had, in 1804, built a

successful *screw* steam-vessel ; and his paddle-steamer of 1807, the "Phoenix," was very possibly a better piece of engineering than the "Clermont." John Fitch had, still earlier, used both screw and paddle. In England, Miller and Symmington and Lord Dundas had antedated even Fulton's earliest experiments on the Seine. Indeed, it seems not at all unlikely that Papin, a century earlier (in 1707), had he been given a monopoly of steam-navigation on the Weser or the Fulda, and had he been joyfully hailed by the Hanoverians as a public benefactor, as was Fulton in the United States, instead of being proscribed and assaulted by the mob who destroyed his earlier "Clermont," might have been equally successful ; or it may be that the French inventor, Jouffroy, who experimented on the rivers of France twenty-five years before Fulton, might, with similar encouragement, have gained an equal success.

Yet although Fulton was not in any true sense "the inventor of the steamboat," his services in the work of introducing that miracle of our modern time cannot be overestimated ; and, aside from his claim as the first to grasp success among the many who were then bravely struggling to place steam-navigation on a permanent and safe basis, he is undeniably entitled to all the praise that has ever been accorded him on such different ground.

It is to Robert Fulton that we owe the fact that to-day the rivers of our own country, and those of the world as well, are traversed by steamers of all sizes and all kinds, and by boats suited to every kind

of traffic ; that the ocean floats, in every clime and in all its harbours, fleets of great steamers, transporting passengers and merchandise from the United States to Europe, from Liverpool to Hong-Kong, from London to Melbourne, traversing the "doldrums" as steadily and safely and as rapidly as the regions of the trades or either temperate zone. Steam-navigation without Fulton would undoubtedly have become an established fact ; but no one can say how long the world, without that great engineer and statesman, would have been compelled to wait, or how much the progress of the world might have been retarded by his failure, had it occurred. The name of Fulton well deserves to be coupled with those of Newcomen and Watt, the inventors of the steam-engine ; with those of George and Robert Stephenson, the builders of the railway ; and with those of Morse and Bell, who have given us the telegraph and the telephone.

VII.

RIVER AND OCEAN STEAM-FLEETS.

WHILE Robert Fulton and his rivals in the United States were thus bringing into fruition the dreams of a century, inventors in other parts of the world were by no means idle. In Great Britain, Miller, Taylor, Symmington, and Lord Dundas had set an example which was well emulated by Henry Bell, of Glasgow, in 1812, when he built the "Comet" at Greenock, on the Clyde, — the first passenger steamer constructed in Europe. The boat was laid down in 1811, and completed Jan. 18, 1812, and proved to be a success. It was of 30 tons burden, 40 feet long, 10 feet beam, and driven by two pairs of paddle-wheels, worked by engines rated at but three horse-power.

Bell's boat was advertised as a passenger boat, to leave Greenock on Mondays, Wednesdays, and Fridays, for Glasgow, twenty-four miles distant, returning Tuesdays, Thursdays, and Saturdays. The fare was made "four shillings for the best cabin, and three shillings for the second." It was some months before the vessel became considered a trustworthy means of conveyance.

Bell constructed several boats in 1815, and with his success steam-navigation in Great Britain was fairly inaugurated. In 1814 there were five steamers,

all Scotch, regularly working in British waters. In 1820 there were thirty-four, — one half of which were in England, fourteen in Scotland, and the remainder in Ireland. Twenty years later, at the close of the period to which this chapter is especially devoted, there were about thirteen hundred and twenty-five steam-vessels in that kingdom, of which about a thousand were English, and two hundred and fifty Scotch.¹

During this period the introduction of the steam-boat on the great rivers of the United States was one of the most notable events of history. Inaugurated by Evans, the building of steam-vessels once begun, never ceased; and not long after Fitch's burial on the bank of the Ohio, his last wish — that he might lie "where the song of the boatman would enliven the stillness of his resting-place, and the music of the steam-engine soothe his spirit" — was fulfilled.

Nicholas J. Roosevelt was the first to take a steam-boat down the Ohio and Mississippi. His boat was built at Pittsburgh in 1811 from Fulton's plans. It was called the "New Orleans," of about two hundred tons burden, and was propelled by a stern-wheel, assisted, at times, by sails on two masts. The hull was 138 feet long, and 30 feet beam. The cost of the boat, including engines, was about \$40,000. The builder, with his family, an engineer, a pilot, and six "deck-hands," left Pittsburgh in October, 1811, reached Louisville in seventy hours (about ten miles an hour), and New Orleans in fourteen days, steaming from Natchez.

The next steamers built on Western waters were

¹ Thurston's History of the Steam-Engine, p. 249.

probably the "Comet" and the "Vesuvius." The "Comet" was finally laid aside, and the engine used to drive a saw-mill; and the "Vesuvius" was destroyed by the explosion of her boilers. In 1813 there were two shops at Pittsburgh building steam-engines, and it is stated that as early as 1840 there were a thousand steamers on the Mississippi and its tributaries.

In the "Washington" (built at Wheeling, Va., in 1816, by Capt. H. M. Shreve) the boilers, previously placed in the hold, were carried on the main-deck, and a "hurricane-deck" was built over them. Two horizontal direct-acting engines were adopted instead of the single upright engine used by Fulton, and were driven by high-pressure steam without condensation. The engines, one on each side of the boat, were attached to cranks placed at right angles. He adopted a cam cut-off, and the flue-boiler of Evans. At that time the voyage to New Orleans from Louisville occupied three weeks, and Shreve was made the subject of many witticisms when he predicted that the time would be shortened to ten days. It is now made in four days.¹

The death of Fulton left the work of introduction of the steamboat on the rivers of the country in the hands of others no less able and enterprising than he; and the expiration or repeal of the provisions giving the monopoly of steam-navigation on the Hudson to his company permitted them to proceed with their plans undisturbed. The courts ruled, finally, that only the General Government could control the navigation of tide-waters and navigable rivers communi-

¹ Thurston's History of the Steam-Engine, p. 249.

cating directly with the sea ; the provisions for rewarding inventors by a patent-system covering the whole country and administered by the United States patent office gave good reason for withdrawing the special laws previously sustained by the several States, for giving this kind of monopoly, where legal, even ; and the whole river-system of the country was open to all.

The steam-navigation of the Hudson soon fell largely into the hands of the Stevens, father and sons ; and they, mainly through the ingenuity and skill of Robert L. Stevens,¹ soon established what has come to be recognized as a peculiarly admirable type of craft for these long inland routes.

Referring to his valuable services, President King, then of Columbia College, who seems to have been the first to appreciate the original invention and the excellence of the engineering of this family, in a lecture delivered in New York, in 1851, gave a connected and probably accurate description of their work.

Young Stevens began working in his father's machine-shop when a mere boy, and acquired at a very early age familiarity with details of work and of business. It was he who introduced the "hollow water-line" in the "Phoenix." In the same vessel he adopted a feathering paddle-wheel and the guard-beam now universally seen in river steamboats.

The "Philadelphia" was built in 1813, and the

¹ The Author has compiled a memorandum of the work of this remarkable engineer, the perusal of which may give some idea of the ingenuity and versatility of his talents. See the Journal of the Franklin Institute, 1874.

young engineer introduced several new devices, including screw-bolts in place of "tree-nails," and diagonal knees. Two years later he altered the engines, and arranged them to work steam expansively. A little later he began using anthracite coal. Stevens was the first of whom we have record who was thoroughly successful in using the new fuel. Mr. R. L. Stevens's labours and inventions in mechanics, should have more fitting commemoration than can be given in any passing notice. Of some of them the following is the chronological record : —

1808. Hollow or concave water-lines in the bow were introduced for the first time in the steamboat "Phoenix;" these lines, under the name of "wave lines," are now claimed as a recent application. On the same vessel, in 1809, he first used the feathering-wheel with vertical buckets on pivots.

1809. He suspended the guard-beam by iron rods from above, as is now universally done in river steamers.

1813-14. The war with England being in progress, he invented the elongated shell, to be fired from ordinary cannon. Having perfected this invention, he sold the secret to the United States, after experiments so decisive as to leave no doubt of the efficacy of such projectiles. In one of these experiments made at Governor's Island in the presence of officers of the army, a target of white oak, four feet thick, was completely destroyed by a shell weighing two hundred pounds and containing thirteen pounds of powder; the opening made was large enough, as the certificate

of the officer commanding, Colonel House, stated, for a man and horse to enter.

These shells were said to be free from the danger accompanying ordinary shells, for they were hermetically sealed. Some, after being kept twenty-five years, were tested by exploding gunpowder under them, and then taken to high places and let fall on rocks below, without causing them to explode. After this they were plunged into water, and finally being put into the gun, were fired, and upon striking, exploded with devastating effect.

1813. First to fasten planks and braces of steam-boats with screw-bolts, and to place diagonal knees inside.

1815. First to use steam expansively in the "Philadelphia."

1818. First to burn anthracite coal in a cupola furnace, and subsequently to introduce this fuel in steamers, — the "Passaic" being the earliest.

1822. He made the skeleton wrought-iron walking-beam now in general use.

1824. First to place the boilers on the guards, and to divide the buckets on the wheel.

1827. First, on steamboat "North America," to apply artificial blast to the furnace, and in the same boat to apply what is technically known as the "hog-frame," consisting of large timbers along the sides, to prevent the boat from being "hogged."

1828. First to apply steel spring bearings, under the centre of the paddle-shaft of the steamer "New Philadelphia."

1832. First to introduce perfectly balanced valves, which enabled one man to work the largest engine with ease. In the same year he used braces to the connecting-rod, thus preventing its tremulous motion.

1832-33. Constructed a boat capable of navigating through heavy ice. In the same year he introduced tubular boilers.

1840. Improved the packing of pistons for steam-engines by using the pressure of steam to retain the packing-ring against the surface of the cylinder.

1841. The Stevens Cut-off, by means of main valves worked by two eccentrics, invented by R. L. Stevens and his nephew F. B. Stevens. In the same year he invented and applied on the Camden and Amboy railroad the double-slide cut-off for locomotives and large engines, and improved locomotives by using eight wheels, and with increased adhesion was enabled to turn short curves with little friction on the flanges; also used anthracite as a fuel to great advantage on the heavy engines.

1842. Having contracted to build for the United States government a large war-steamer, shot and shell proof, R. L. Stevens built a steamboat at Bordentown for the sole purpose of experimenting on the forms and curves of propeller-blades, as compared with side-wheels, and continued his experiments for many months. While occupied with this design he invented about 1844, and took a patent for, a mode of turning a steamship of war by means of a cross propeller near the stern, so that if one battery were disabled, she might promptly present the other.

1848. This year he succeeded in advantageously using anthracite in fast passenger locomotives.

1849 witnessed the successful application of air under the bottom of steamer "John Neilson," whereby friction is so much diminished, that she actually attained, as stated by President King, the speed of twenty miles an hour. This was the invention of R. L. Stevens and F. B. Stevens.

The name of Robert L. Stevens will long be remembered as that of one of the greatest of American mechanics, the most intelligent of naval architects, and as the first, and one of the greatest, of those to whom we are indebted for the beginning of the mightiest of revolutions in the methods and implements of modern naval warfare. American mechanical genius and engineering skill have rarely been too promptly recognized, and no excuse will be required for an attempt (which it is hoped may yet be made) to place such splendid work as that of the Messrs. Stevens in a light which shall reveal both its variety and extent and its immense importance.

As early as August, 1841, his brothers, James C. and Edwin A. Stevens, representing Robert L., addressed a letter to the Secretary of the Navy, proposing to build an iron-clad vessel of high speed, with all its machinery below the water-line, and having submerged screw-propellers. The armament was to consist of powerful breech-loading rifled guns, provided with elongated shot and shell. In the year 1842, having contracted to build for the United States government a steamer on this plan, Robert L.

Stevens built his steamboat at Bordentown, for the sole purpose of experimenting on the forms and curves of propeller-blades, as compared with side-wheels, and, as already stated, worked many months. After some delay, the keel of an iron-clad was laid down. This vessel was to have been 250 feet long, 40 feet beam, and 28 feet deep. The machinery was 700 horse-power. The plating was proposed to be $4\frac{1}{2}$ inches thick, — the thickness adopted ten years later by the French.

In 1854 such marked progress had been made that Mr. Stevens was no longer willing to proceed with the original plans, and work, which had progressed very slowly and intermittently, was stopped entirely; and in 1854 the keel of a ship of much greater size and power was laid down. The new design was 415 feet long, of 45 feet beam, and of something over 5,000 tons displacement, while its machinery was of 8,600 horse-power. The thickness of armor proposed was $6\frac{3}{4}$ inches. The engines were to drive twin screws, propelling the vessel twenty miles or more an hour.

The remarkable genius of Stevens is in no way better exemplified than by the accuracy with which, in this great ship, those forms and proportions were adopted which are now, many years later, recognized as most correct under similar conditions. The lines of the vessel were beautifully fair and fine, — what J. Scott Russell called “wave-lines,” or trochoidal lines, and are now known to be the best possible for easy propulsion.

The death of Robert L. Stevens occurred in April, 1856, when the hull and machinery were practically finished, and it only remained to add the armour-plating, and to decide upon the form of fighting-house and the number and size of guns. The construction of the vessel then ceased and it was never completed.

From the time of Fulton, the progress of steam-navigation on the rivers of the United States was rapid. The "Phoenix" of Stevens opened the Delaware, and the boats of Fulton himself and his successors introduced the new system of transportation on the Connecticut and Long Island Sound. The venturesome voyage of Roosevelt, in 1811, down the Ohio and the Mississippi, was made on the first of the steam-vessels, since numbered by thousands, on the western waters. His boat, the "New Orleans," ran for years between the city of that name and Natchez. The "Enterprise," in 1814, took part in the defence of New Orleans by General Jackson, and afterward ascended the "Father of Waters," reaching Louisville in twenty-five days from New Orleans. A quarter of a century later the trip was made in less than a week; and in 1850, four days was considered good time for the same voyage.

By the year 1860 there were about one hundred and twenty-five steamboats on the Ohio and Mississippi and their tributaries, some of which made twenty miles an hour or more. All were paddle-boats, and usually stern-wheelers, — that type of vessel being found more manageable on those rivers, — although

the side-wheeler became the only form of steamboat on the rivers and sounds of the coast for many years, and until the advent of the screw.

The growth of steam-navigation in Great Britain was less rapid than in the United States ; but as early as 1815, about the time of Fulton's death, there were ten steamers on the Clyde, and seven or eight on the Thames. The "*Argyle*" was the first sea-going steamer built in British waters. This vessel made a voyage from the Clyde, where she was built, to London, where she was to be employed, after a year of service between Glasgow and Greenock. The voyage was made in about a month, in a stormy season, and the Thames was safely reached, the vessel then entering upon her regular scheduled trips between London and Margate. In 1816 the steamer "*Majestic*," built at Ramsgate for the purpose, made her first trips between Brighton and Havre, and from Dover to Calais. It was in this year that Captain Bunker, who had served on the "*Phoenix*," was given command of the steamer "*Connecticut*," and established the first line of boats on Long Island Sound, between New York and New Haven and New London. From this date on, British steamers began to appear in all the principal harbours of Great Britain, and lines to Ireland and to the French and Dutch coasts were rapidly created.

Progress continued to be most rapid in the United States, however. Cornelius Vanderbilt made his first venture in the "*Bolona*," built by Lawrence in 1817 ; and the fortunes of that family and the steam-navi-

gation of the Hudson and of the sounds adjacent flourished together. The trip to Providence from New York was made, in those days, in about twenty hours, and the price paid was ten dollars, including berths and meals.

About 1821 Robert L. Thurston, John Babcock, and Capt. Stephen T. Northam, of Newport, R. I., commenced building steamboats, beginning with a small craft intended for use at Slade's Ferry, near Fall River. They afterward built vessels to ply on Long Island Sound. One of the earliest was the "Babcock," built at Newport in 1826. The engine was built by Thurston and Babcock, at Portsmouth, R. I. They were assisted in their work by Richard Sanford, and with funds by Northam. The engine was of twelve inches diameter of cylinder, and four feet stroke of piston. The boiler was a form of "pipe-boiler," patented (1824) by Babcock. The water used was injected into the hot boiler as fast as required to furnish steam, no water being retained in the steam-generator. This boat was succeeded, in 1827-1828, by a larger vessel, — the "Rushlight," — for which the engine was built by James P. Allaire, at New York, while the boat was built at Newport. The boilers of both vessels had tubes of cast-iron. The smaller of these boats was of eighty tons burden. It steamed from Newport to Providence, 30 miles, in $3\frac{1}{2}$ hours, and to New York, a distance of 175 miles, in 25 hours, using $1\frac{3}{4}$ cords of wood.¹ Thurston and Babcock removed to Providence, where the latter died. Thurston continued to build steam-engines

¹ History of the Growth of the Steam-Engine, p. 281.

there nearly a half-century, dying in 1874. The establishment founded by him, after various changes, became the present Providence Steam-Engine Works.

This "pipe-boiler" was intended, as was the earlier construction of the elder Stevens, for high pressures, which now came into use. As early as 1817, according to the testimony of Seth Hunt before a parliamentary committee in England, Oliver Evans had successfully carried pressures of one hundred and forty and one hundred and sixty pounds of steam; and now James P. Allaire, of New York, started on the same line of improvement in economy. Watt had showed, both by his logical deduction, exemplified in his patent of 1769, and by actual construction of engines some years later, that the expansive action of steam was an available source of economy, and had beaten Hornblower, whose compound engine was expressly constructed for the purpose of securing that advantage. Allaire used the compound engine, with steam at a pressure of one hundred pounds and upward, in 1825, for the first time in steam-navigation. The first of his vessels of this class was the "Henry Eckford," and this was succeeded by others, one of which, the "Sun," made the run from New York to Albany in twelve hours, eighteen minutes. Erastus W. Smith afterward introduced the compound engine on the Great Lakes, and they were still later introduced into British steamers by John Elder and his partners. The machinery of the steamer "Buckeye State" was constructed at the Allaire Works, New York, in 1850, from the designs of John Baird and Smith, the latter being the designing and constructing engineer. The steamer was placed on the route between

Buffalo, Cleveland, and Detroit, in 1851, with most satisfactory results, consuming less than two thirds the fuel required by a similar vessel fitted with the single-cylinder engine. The steam-cylinders were placed one within the other, the low-pressure exterior cylinder being annular. They were 37 and 80 inches in diameter, respectively, with a piston-stroke of 11 feet. Both pistons were connected to one cross-head, and the arrangement of the engine was that of the common beam-engine. The steam-pressure was seventy to seventy-five pounds, — about the maximum pressure adopted a quarter of a century later on trans-Atlantic lines.

The French engineers were but little behind their American rivals in this race, and built a steamboat with compound engines, in 1829, called the "Union," from the plans of M. Hallette, of Arras. Steam was carried at sixty-five to seventy pounds pressure.

As illustrating the latest form of the lineal successor of Fulton's "Clermont," we may take the Hudson River steamer "New York," plying on the same route. The hull of this vessel was built at Wilmington, Del., by The Harlan and Hollingsworth Co., of iron throughout. The dimensions are as follows :

Length on the water-line	301 feet.
Length over all	311 "
Breadth of beam, moulded	40 "
Breadth of beam, over guards	74 "
Depth, moulded	12 " 3 ins.
Draft of water	6 "
Tonnage (net, 1091.89)	1552.52



Fig. 17. — The "New York."

The machinery was built by the W. & A. Fletcher Company, North River Iron Works. The engine is a standard American beam-engine, with a cylinder seventy-five inches diameter and twelve feet stroke of piston, with Stevens's cut-off. The use of a surface condenser, instead of a jet condenser, in this river steamer, is a change made to overcome the evil of using mixed salt and fresh water in the boilers.

Another is the adoption of "feathering-wheels" instead of the radial wheels, with fixed buckets or floats. These wheels are 30 feet 2 inches diameter outside of buckets. There are twelve curved steel buckets to each wheel. Each bucket is 3 feet 9 inches wide and 12 feet 6 inches long, with an angle iron 3 x 5 inches on each end. The wheels are overhung, or have a bearing outboard on the hull only. The feathering is done in the usual manner by means of driving and radius bars, operated by a centre placed eccentric to the shaft and held by the A frame on the guard. They were introduced in the "New York" for the purpose of gaining speed, and the trial-trips show that the builders' expectations were not groundless.

Absence of jar is another great gain obtained by the use of these wheels, and the comparatively thin buckets enter the water so smoothly that the boat is without the shake so common with the ordinary wheels.

Steam is supplied to the engine by three return flue-boilers, each $9\frac{1}{4}$ feet diameter of shell, 11 feet width of front, and 33 feet long. These boilers are con-

structed for a working pressure of fifty pounds per square inch. Each boiler has a grate surface of 76 square feet, or 228 square feet in all, and with the forced draught produce 3,850 horse-power.

Another measure of safety is the steam steerer, which has been put on so that the boat can be handled with the quick and easy precision due to this improvement.

The exterior is, as usual in this class of steamers, of pine painted white, relieved with tints and gold. The interior is finished in cabinet work, and is all hard wood, — ash being used forward of the shaft on the main deck and mahogany aft and in the dining-cabin.

The construction of steamers of recent design for lake and sound routes, as between New York and New England, on Long Island Sound, is exemplified by that of the "Puritan."

"The 'Puritan' has principal dimensions as follows : Length, over all, 420 feet ; length on the water-line, 404 feet ; width of hull, 52 feet ; extreme breadth over guards, 91 feet ; depth of hull amidships, 21 feet, 6 inches ; height of dome from base-line, 63 feet ; whole depth, from base-line to top of house over the engine, 70 feet. Her total displacement is 4,150 tons, and her gross tonnage 4,650 tons.

"The 'Puritan' is fireproof and unsinkable, has a double hull divided into fifty-nine water-tight compartments. In the fastenings of her steel hulls and compartments, there have been used seven hundred thousand rivets. Her decks are of steel, wood covered.



Fig. 18. — The "Puritan."

Her masts are of steel, and hollow, to serve as ventilators, and are twenty-two inches in diameter. Her paddle-wheels are encased in steel.

"The 'Puritan's' hull is made of 'mild steel,' which metal, weight for weight, is some twenty per cent stronger than iron, with twenty-five per cent reduction of area, according to the best Government test. "Her wheels are of steel, and are 35 feet in diameter outside the buckets. The buckets are 14 feet long and 5 feet wide, each bucket of steel $\frac{7}{8}$ inch thick, and weighing 2,800 pounds without rocking-arms and brackets attached. The total weight of each wheel is 100 tons. "She has eight steel boilers of the Redfield return tubular type, and the maximum working pressure is one hundred and ten pounds to the square inch. 'This fact illustrates the great advances made since the days of Fulton in the safe employment of high-pressure steam; and the standard construction continually tends toward still higher tension.

"The 'Puritan' has a compound, vertical beam, surface-condensing engine of 7,500 horse-power. The high-pressure cylinder is 75 inches in diameter, and 9 feet stroke of piston. The low-pressure cylinder is 110 inches in diameter, and 14 feet stroke of piston. A horse and wagon could be driven through this cylinder if laid on its side. The surface condenser has 15,000 square feet of cooling surface and weighs 53 tons. Of condenser tubes of brass there are $14\frac{1}{2}$ miles in the 'Puritan.' Her working beam is the largest ever made, being 34 feet in length from

centre to centre, 17 feet wide, and weighing 42 tons. When it is considered that the section of beam-strap measures $9\frac{1}{2} \times 11\frac{1}{4}$ inches, one may get an idea of the enormous strain and the strength of resistance of this beam. The main centre of the beam is 19 inches in diameter in bearing. The shafts are 27 inches in diameter in main bearing, and 30 inches in gunwale bearing, and are the largest ever made in this country. They weigh 40 tons each. The cranks weigh 9 tons each. The crank-pin is enormous, the bearing being 10 inches in diameter and 22 inches long.

“There are two centrifugal circulating pumps, each capable of throwing ten thousand gallons per minute. Besides these there are three other large pumps, with a combined capacity of two thousand gallons per minute. Novel features are the three steam capstans, — one forward and one on each quarter, — to be used in docking the boat; each capstan has a double cylinder engine, each cylinder twelve inches in diameter and fourteen inches stroke. She has two Sturtevant blowers, furnishing fresh air for fire-room, each capable of fifty thousand feet per minute. She will burn about one hundred and twenty tons of coal on the trip from New York to Fall River and back.

“From stem to stern, and in every nook and corner of the ship, the electric wire is to be found. In all, there are twelve miles of this wire; and including annunciators, fire-alarm, etc., there are twenty miles of wire on the ship, and twelve thousand feet of steam pipe. There are capacious gangways, grand and im-

posing staircases heavy with brass and mahogany, lofty cornices, and ceilings supported by tasteful pilasters, the tapering columns of which, in relief, flank exquisitely tinted panelling throughout the length of her grand and minor saloons. And over all this artistic work and exuberant colouring, the incandescent electric light sheds its soft rays. Every convenience known to civilization, and which can contribute to the ease and comfort of the traveller on land or when afloat, is included in the internal arrangements of this floating caravansary. The artistic and luxuriant sense of the beholder is also abundantly appealed to. The 'Puritan' has in all, three hundred and sixty-four staterooms.

"Some idea of the immense amount of finish in the different departments may be obtained when it is understood that in the gilding alone 185,000 gold leaves, each $3\frac{3}{8}$ inches square, were used. In painting the ship nearly one hundred thousand pounds of lead were expended."¹

¹ Fall River Line Gazette.

VIII.

OCEAN STEAMERS. — THE OUTLOOK.

STEAM-NAVIGATION on the ocean had a real beginning about 1840, and this may be taken as the period of introduction of the screw-propeller, — two events of supreme importance in the history of the art which the work of Fulton had so effectively promoted. Tentatively, the steam-navigation of the ocean had begun but little later than the navigation of the rivers and harbours of the United States. The ocean voyage of Robert L. Stevens was soon followed by those of Bell and Dodd in Great Britain; and by 1815 it was recognized as a possibility that long voyages might be undertaken by larger vessels. The first transatlantic voyage was made by the "Savannah," in 1819, partly by steam, in part by sail. This ship is now famous as the pioneer in this great traffic. The following description has been elsewhere given by the Author : ¹

The "Savannah" measured three hundred and fifty tons, and was constructed by Crocker & Fickett, at Corlear's Hook, N. Y. She was purchased by Mr. Scarborough, of Savannah, who placed Captain Moses Rogers, previously in command of the "Clermont"

¹ History of the Steam-Engine, p. 285, *et seq.*



Fig. 19. — Old Ship-of-the-Line and Modern Ironclad.

and of Stevens's boat, the "Phoenix," in charge. The ship was fitted with steam machinery and paddle-wheels, and sailed for Savannah, April 27, 1819, making the voyage successfully in seven days. From Savannah, the vessel sailed for Liverpool, May 26, and arrived at that port June 20. During this trip the engines were used eighteen days, and the remainder of the voyage was made under sail. From Liverpool the "Savannah" sailed, July 23, for the Baltic, touching at Copenhagen, Stockholm, St. Petersburg, and other ports. At St. Petersburg, Lord Lyndock, who had been a passenger, was landed; and on taking leave of the commander of the steamer the distinguished guest presented him with a silver tea-kettle, suitably inscribed with a legend referring to the importance of the event which afforded him this opportunity. The "Savannah" left St. Petersburg in November, passing New York December 9, and reaching Savannah in fifty days from the date of departure, stopping four days at Copenhagen, Denmark, and an equal length of time at Arundel, Norway. Several severe gales were met in the Atlantic, but no serious injury was done to the ship.

The "Savannah" was a full-rigged ship. The wheels were turned by an inclined direct-acting low-pressure engine, having a steam-cylinder forty inches in diameter and six feet stroke of piston. The paddle-wheels were of wrought-iron, and were so arranged that they could be detached and hoisted on board when found advisable. After the return of the ship to the United States the machinery was removed,

and was sold to the Allaire Works, of New York. The steam-cylinder was exhibited by the purchasers at the World's Fair at New York, thirty years later. The vessel was employed as a sailing-vessel on a line between New York and Savannah, and was finally lost in the year 1822.

Later, the "*Enterprise*" made a voyage (1825) to India, under steam and sail as the weather and circumstances permitted; and still other vessels were built, using "auxiliary" engines, as they were called; but even as late as 1838 there were grave doubts expressed by eminent authorities of the feasibility of making long voyages by steam alone. These doubts were, however, set at rest in that year by the crossing of the Atlantic by two steamers almost simultaneously, — the "*Sirius*" and the "*Great Western*." The latter was a large vessel for those days, and nearly double the size and power of the other. The "*Great Western*" was of 1,350 tons burden and 450 horse-power; the "*Sirius*" was of 700 tons and 250 horse-power.

The "*Sirius*" sailed from Cork on the 4th and the "*Great Western*" from Bristol on the 8th of April, both arriving in New York on the same day, — April 23, 1838, — the one in the morning, the other in the afternoon. These vessels were placed on the route in the interests, respectively, of the British and American Steam Navigation Co., and of the Great Western Railway of Great Britain. Both ships returned safely, making good time; and the larger was kept on the line for some years, making many successful voyages. The other craft was deemed too small

for the route and was taken off and placed on a line between Dublin and Cork. Other ships were soon built for this trade, and the transoceanic lines were gradually established, never again to be given up. As may well be imagined, the appearance of the two pioneers in New York harbour was a most impressive event, and awakened the greatest enthusiasm on both sides the Atlantic. The formation of the still-existing



Fig. 20. — The "Pacific," 1851.

Cunard Line immediately followed; its first vessel, the "Britannia," sailing for New York on the 4th of July, 1840. Three sister ships followed; and the four steamers continued in service until the success of the enterprise was so far assured as to justify the building of larger and more powerful vessels. These four ships had an aggregate of about forty-six hundred tons burden, — about one half the tonnage of single vessels now on transatlantic lines. These vessels and the ships of the first large American company, the Collins Line,

organized about 1850, were all paddle-steamers with side-lever engines, like that illustrated in figure 21. They were first built, it is said, by Messrs. Maudsley, Sons, & Field, about 1835 ; but that here illustrated was designed by Mr. Charles Copeland, of New York, for the "Pacific," one of the Collins steamers.

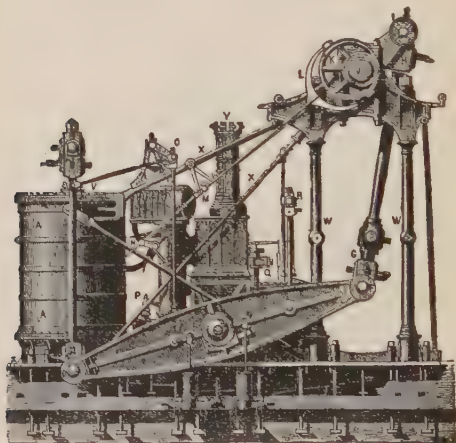


Fig. 21. — The Side-Lever Engine, 1849.

This steamer was built at New York, — the hull by William Brown, and the machinery by the Novelty Iron Works. The length of the hull was 276 feet, its breadth 45 feet, and the depth of hold $31\frac{1}{2}$ feet. The width over the paddle-boxes was 75 feet. The ship measured 2,860 tons. The form of the hull was such as best adapted the ship for high speed. The main "saloon" was about 70 feet long, and the

dining-room was 60 feet in length and twenty feet wide. The staterooms accommodated 150 passengers. These vessels inaugurated our present wonderful system of passenger-transportation.¹ The engines were of the side-lever type, as illustrated in Figure 21.

In this engine the piston-rod was attached to a cross-head, from which, at each side, links *B C*, connected with the side-lever, *D E F*. The latter vibrated about a main centre at *E*; from its other end a connecting-rod, *H*, led to the cross-tail, *W*, connected to the crank-pin, *I*. The condenser, *M*, and air-pump, *Q*, were between the cylinder, *A*, and the crank, *I J*.

The Collins Line proved a failure; but it was very largely a consequence of a series of misfortunes, for which neither the management nor the officers of the ships were held accountable. Ship after ship was lost, and the costs of operation in competition with the British lines, which were subject to far less expense, proved to be unexpectedly large. It is also probable that the general introduction of the screw, after these ships had been built as paddle-steamers, had something, perhaps much, to do with the final breaking down of so expensive and burdensome a line. The screw-propeller had by this time become an undeniable success in competition with the paddle in ocean steaming; and screw-vessels now rapidly displaced those propelled by paddle-wheels.

The screw-propeller, proposed by Bernouilli and by Watt, used successfully by Fitch and by Stevens and

¹ History of the Steam-Engine, p. 290.

Smith, and a little later (1812) by Trevithick, was finally brought into use for general purposes by Francis Pettit Smith in Great Britain, and by John Ericsson in the United States, after the latter had made an experimental success but a commercial failure of it in England. Ericsson's patent on his screw was issued from the British patent office in 1836. His boat, built in that year, was found to be capable of doing good work as a "tug" on the Thames, making ten miles an hour, running free, and towing large vessels at the rate of five to seven miles an hour. The British Admiralty, with customary conservatism, refused to adopt Ericsson's plans, and he was persuaded by Captain Stockton, an enterprising American naval officer, to go with him to the United States, and there endeavour to interest the Navy Department in his inventions. A screw-vessel, the "Stockton," was accordingly built in England and sent over to the United States in 1839; and Ericsson followed, to build other vessels for Stockton and his partners in the venture. The "Stockton" remained in service on the Delaware and Raritan Canal, under the name of the "New Jersey," for many years.

After the departure of Ericsson a company was formed in England to work the patents of Smith; and this company built the "Archimedes," the trial-trip being made October 14 of that year. This boat made nearly ten miles an hour; and the British Admiralty at last began to take some interest in the subject, and subsequently adopted the screw for naval purposes. Meantime, also, Congress had authorized the

construction of new vessels, and Ericsson was allowed to introduce his screw and his engines into one of them, — the “Princeton.” This was the first steamer built for war purposes which was fitted with a screw-propeller. She was large for the time, — about one thousand tons displacement, — and all the machinery was placed under the water-line for the first time also.

In reporting on the performance of this ship, Captain Stockton, who was the first commander, recites the advantages possessed by the steamer in consequence of the facts that her machinery is out of reach of shot ; that no paddles are in sight ; that she has clear decks ; and that, burning anthracite coal, no smoke is visible ; he then goes on to repeat, substantially, the idea of Fulton, saying, “The improvements in the art of war effected on board the ‘Princeton’ may be productive of more important results than anything that has occurred since the invention of gunpowder. The numerical force of other navies, so long boasted, may be set at naught ; the ocean may again become neutral ground ; and the rights of the smallest, as well as the greatest nations, may once more be respected.” The hull of the vessel was condemned in 1849, and the ship broken up. A second hull was built, fitted with the same machinery, and given the same name, in 1851, but was less satisfactory, performed little service, and was sold out of the service in 1867. Since the days of the “Princeton,” all navies have adopted the screw-propeller, and all naval fleets are steam-fleets.

The screw was found to possess many advantages

over the paddle-wheel. The cost of machinery was greatly reduced; the expense of maintenance in working order was, however, somewhat increased. The latter disadvantage was, nevertheless, compensated by an immense increase in the economy of power for ship-propulsion, which marked the substitution of the new machinery.

When a ship is under way, the motion of the vessel creates a current of water in the direction in which the ship is moving, following the ship for a time, and finally losing all motion by contact with the surrounding mass of water. All the power expended in the production of this great stream is, in the paddle-steamer, lost. In screw-steamers, however, the propelling instrument works in this following current; and the tendency is to bring the fluid to rest, taking up, and thus restoring usefully, a large part of that energy which would otherwise have been lost. The screw is covered by the water, and acts with comparative efficiency in consequence of its submersion. The rotation of the screw is rapid and smooth also, and this permits the use of small, light, fast-running engines. The latter condition leads to economy of weight and space, and saves not only the cost of transportation of the excess of weight of the larger kind of engine, but leaving so much more room for cargo, the gain is found to be a double one. Still further: the quick-running engine is, other things being equal, the most economical, and thus expense is saved, not only in the purchase of fuel, but in its transportation; and additional gain is derived from the increased amount

of paying cargo which the vessel is thus enabled to carry.¹

Since the days of Ericsson's great success in the introduction of the screw-propeller and the organization of steam-fleets, there have been two great improvements in the steam-engine, and two important changes in naval construction. The first two are the general introduction of the surface-condenser, and the use of the compound engine at sea; the second two are the building of the iron-clad fleet, and the construction of Ericsson's greatest invention, the "Monitor." During these fifty years, also, the steam-fleets of the merchant navies of the world have become enormously increased in numbers, their vessels have grown to tremendous size, and their machinery has more than proportionally gained in power, driving their great hulls through the heaviest seas with the speed of the railway train on land.

The change from the side-lever single-cylinder engine, with jet-condenser and paddle-wheels, to the direct-acting compound engine, with surface-condenser and screw-propellers, has occurred within this period. Builders slowly learned the principles governing expansion in one or more cylinders; and the earlier engines were often made with a high and low pressure cylinder working on the same rod, each machine consisting of four steam-cylinders. It was at last discovered that a high-pressure single-cylinder engine exhausting into a separate larger low-pressure engine might do as well, and the compound engine

¹ History of the Steam-Engine, p. 297.

became as simple as the type of engine which it displaced.

The advantage of introducing such engines at sea is considerably greater than on land. The coal carried by a steam-vessel is not only an item of great importance in consequence of its cost, but it represents so much non-paying cargo, and is to be charged with the full cost of transportation in addition to first cost and the loss of profit on the freight that it displaces. To this saving of cost on fuel account, by the use of the later type of engine, is to be added the gain in wages and sustenance of the labour required to handle that coal.

At sea, rise of steam-pressure was for a considerable time retarded by the serious difficulty encountered in the tendency of the sulphate of lime to deposit from the sea-water in the boiler. When steam-pressure had risen to twenty-five pounds per square inch, it was found that no amount of "blowing out" would prevent the deposition of seriously large quantities of this salt. The introduction of surface-condensation was attempted as the remedy for this evil, but it was long doubtful whether its disadvantages were not greater than its advantages. It was found difficult to keep the condensers tight; and boilers were injured by corrosion, evidently due to the presence of the surface-condenser. The simple expedient of permitting a thin scale to form in the boiler was, after a time, hit upon as a means of overcoming this difficulty. Once introduced, the surface-condenser removed the obstacle to further elevation of steam-pressure, and the

rise from twenty to sixty pounds pressure, and more, soon occurred. John Elder and his competitors on the Clyde were the first to take advantage of the fact when these higher pressures became practicable.

Extreme lightness in modern machinery has been largely the result of skilful designing, of intelligent construction, and of care in the selection of material. To-day, the engines of heavy iron-clads are models of good proportions, excellence in materials, and of workmanship. The weight per indicated horse-power has been reduced from 400 or 500 pounds to a fraction of that amount. This has been accomplished by forcing the boilers, by higher steam-pressure, higher piston-speed, reduction of friction of parts, reduction of capacity for coal-stowage, and careful proportioning. The reduction of coal-capacity is compensated by increase of economy secured by high pressure, by increased expansion, elevation of piston-speed, and the introduction of the compound engine with surface-condensation.

A good marine steam-engine of the form considered standard about 1860, having low-pressure boilers carrying steam at 20 or 25 pounds pressure, expanding twice or three times, and with a jet-condenser, would require about 30 or 35 pounds of feed-water per horse-power per hour; substituting surface-condensation brought down the weight of steam used to from 25 to 30 pounds. Increasing steam-pressure to 60 pounds, expanding from five to eight times, and combining the special advantages of the superheater

and the compound engine with surface-condensation reduced the consumption of steam to 20, and with 100 to 150 pounds pressure in the "triple-expansion" engine, in some cases to 15 pounds of steam per horse-power per hour.

The next engraving illustrates the modern compound engine. Here, the cranks YZ are coupled at an angle of ninety degrees, only two cylinders, $A B$, being used; and an awkward distribution of pressure is avoided by having a considerable volume of steam-pipe, or by a steam-reservoir, OP , between the two cylinders. The valves, $y y'$, are set like those of an ordinary engine, the peculiarity being that the steam exhausted by the one cylinder, A , is used again in the second and larger one, B . In this combination, the expansion is generally carried to about six times, the pressure of steam in the boiler being usually between sixty and seventy-five pounds per square inch.

The latest form of marine engine is the "quadruple-expansion" engine, in which the steam, taken from boilers carrying a pressure of one hundred and fifty to two hundred pounds per square inch, is worked through a series of steam-cylinders, expanding continually to lower pressures as it goes, until it is finally discharged into the condenser at a pressure far below that of the atmosphere, all its energy converted, so far as the laws of nature allow, into working power. Thus expanding the steam to sixteen or twenty times its original volume, each of the four elements of the engine doing its share of the work, this machine is found capable of vastly more effective use of steam

than the older types of engine, in which the wastes within the cylinders were increased with increasing expansion in far higher proportion than the gain by expansion itself. In the various compound engines, the wastes of one steam-cylinder are utilized more or less completely in the next, thus making the total waste approximately, for the series, only that of one of its cylinders. Otherwise stated, the physical wastes of heat and steam in the "multiple-cylinder" engine of extreme expansion is approximately that only of a single cylinder, with a fraction of that degree of expansion. This is, in simple terms, the secret of the gain by the use of the compound engine. This change of type has been slowly going on, both on land and sea, ever since the time of Watt, whose contemporary and rival, Hornblower, first endeavoured to introduce the now standard system. It has now so far progressed that the marine engine demands only from one and a quarter to one and a half pounds of fuel of good quality per horse-power and per hour. In special instances, on land, where the conditions of operation could be made exceptionally favourable, the economy of the engine is claimed to have been made even greater. Even the locomotive engine is now in process of conversion into a compound engine, with good results in many cases.

As the compound engine revolutionized the methods and results of the work of the engineer in steam-navigation, so the entrance of the modern iron-clad upon the scene, about the middle of the century, revolutionized many of the methods and the results

of naval contests. The idea was by no means new ; but like all great inventions, time had been required for it to become matured, and especially for the world to make ready for it. The Stevens Battery was probably the first real armoured war-vessel proposed and planned, and actually placed on the stocks ; but the first use of the iron-clad of which we have authentic knowledge was during the Crimean War, when the French and English fleet was reinforced by a few iron-clad craft, small and rude, crude in design and thin of plating, but which were sufficient to indicate the probability that such vessels might find place in modern fleets. To-day all fighting ships are plated, and their dimensions have increased, and the thickness of their armour has been made correspondingly greater, until they are now the largest of ships, and their plating withstands the shock of guns throwing shot weighing many hundred pounds, with a velocity of nearly a half-mile in a second ; but they are nevertheless still vulnerable when attacked by Fulton's method of submarine warfare with torpedoes.

Modern fleets include, in some countries, part of the more efficient and the larger merchant-vessels ; and in Great Britain all the largest and fastest trans-oceanic ships are retained, under the laws of the naval code, for use by the Government in time of war, thus making an enormous and important addition to the unarmoured fleet. Lloyd's Register of Shipping of the "War-ships of the World," for 1890, gives statistical and other information regarding all navies, which will be interesting in this connection : —

	Britain.	United States.	France.	Germany.	Italy.	Russia.
Number of first-class armour-clads (18-in. armour and above)	19	. .	13	. .	10	7
Other sea-going armour-clads	41	. .	27	16	11	17
Cruisers and sloops (above 900 tons)	166	47	63	35	22	32
Gun vessels (over 600 tons)	47	3	11	4	17	4
Gunboats (over 200 tons)	81	2	37	10	22	14
War-vessels over 14 knots	169	19	75	44	55	28
Merchant ships to each cruiser or sloop	39	9	8	21	10	7
Merchant tonnage to each cruiser or sloop	49,000	11,000	13,000	26,500	13,600	5,000
Merchant ships to each war-vessel	38	22	7	17	4	8

The speeds of the several classes of war-vessels are as follows :—

	Britain.	France.	Germany.	Italy.	Total, including other Nations
Over 20 knots:					
Number	50	5	2	17	94
Tons displacement	135,900	24,280	640	12,390	238,663
Number of guns	290	48	. .	16	350
Over 19 knots:					
Number	24	10	9	3	61
Tons displacement	96,510	30,030	10,870	7,900	208,210
“	196	58	10	26	375
Over 18 knots:					
Number	9	11	8	9	61
Tons displacement	46,660	4,980	57,260	71,310	232,800
“	107	5	56	72	334

The largest vessels included in the British 20-knot list are the “Blake” and “Blenheim,” of 9,000 tons, and 22 knots speed, with 9 $\frac{1}{4}$ -inch guns. France’s

largest are the "Dupuy de Lôme" and "Amiral Jaures," of 6,300 tons and 20 knots speed. Germany has two small torpedo-catchers of 22 knots, and Italy several of 21 knots, while Austria has three of 23 knots speed. Spain has the "Reina Regenté," of 21 knots speed, and two sister ships. It seems that sixteen merchant-vessels are able to steam over 19 knots, several of them at 21 knots. Of this number nine are Atlantic vessels, three Hamburg-American liners, two White Star, two Inman, and two Cunard liners, while the remainder are paddle-steamers on the Channel,—eight between England and the Continent, and two to the Isle of Man. Several steamers have since been added to the list.

Among the most famous of the great steamers of recent years,—the "ocean greyhounds," as they have been well named,—are the Cunard steamers "Umbria" and "Etruria;" the still faster vessels of the Inman line,—the "City of New York" and the "City of Paris;" and the later ships of the White Star line,—the "Majestic" and the "Teutonic." They are all ships of 8,000 to 10,000 tons burden, and of from 15,000 to 20,000 horse-power. The "City of Paris," for example, cost to build over £350,000, or about \$1,750,000. Her length is 580 feet, and breadth of beam 63 feet, while her two complete sets of engines are of the triple expansion type, and of about 20,000 horse-power. A manufacturing establishment requiring engines of 1,000 horse-power is considered a great enterprise, but this steamer's engines are nearly twenty times as great. The con-



Fig. 23. — The "Teutonic."

sumption of fuel averages about 350 tons a day. She has a crew of 370 men, and accommodations for 1,450 passengers. One thousand electric lamps are required to furnish light. This wonderful vessel has crossed the Atlantic repeatedly in less than six days, and perhaps with the exception of the "Teutonic" has held a first place among the fastest steamers on the ocean up to the present time (1891).

The sister ships "Teutonic" and "Majestic" are of about 16,000 tons displacement,—that is, their weight at sea is that amount,—and are the fastest ships in a fleet of about 85,000 tons total belonging to one company. The "Teutonic" has made the trip from Queenstown to New York in five days, nineteen hours, and five minutes, at a speed averaging 20.2 knots, or about 23.25 miles an hour,—a speed only rivalled by the sister ship and by the "City of Paris," which made its fastest trip in five days, nineteen hours, and nineteen minutes. These ships are of 10,000 tons burden, registered, and their engines are of 17,000 horse-power. They are 582 feet long, 57½ feet wide, and 39½ feet deep, of finest steel for ship construction, and can carry over 1,300 passengers, 3,000 tons of fuel, and 4,000 tons of cargo. There are twenty-five engineers, sixty firemen, and forty-eight coal-passers or trimmers, with supernumeraries, etc., which bring up the total engineer's roll to one hundred and sixty-eight persons. The crew consists of about forty men. There are twenty-five cooks and sixty "stewards." A full passenger-list gives a total of about sixteen hundred persons on board when at sea.

The engines of these great ships are of the triple-expansion variety, two independent sets being employed to drive twin screws. Their condensers contain twenty miles of brass tubes. The fires are forced by blowing-fans, which in the aggregate —



Fig. 24. — The "Henry Grace De Dieu," and the "Great Eastern."

fourteen in number — are capable of supplying about 225,000 cubic feet of air per *minute*. One hundred and twenty tons of water are converted into steam each hour, and at a pressure of one hundred and eighty pounds per square inch.

This would be sufficient for the supply of a city of over twenty-five thousand people, allowing twenty-five gallons per day to each. About 320 tons of fuel are required to convert the water into steam, each day, and the air needed for its combustion weighs about 275 tons. In the condensation of the steam about 4,000 tons of sea-water are passed through the condensers every hour, — the equivalent of the water-supply to a city of three-quarters of a million people.

The outlook, in the direction of higher speeds and better accommodation in river and ocean navigation, judged by the knowledge which we now possess and from the standpoint of the engineer, may be said to be, practically, to-day, what it has been for many years, — a gradual and steady, though probably now comparatively slow, progress in both directions. The gradual increase of size of vessel, of power of machinery, and the improvement in form of the ship's lines, may be expected to go on, more and more slowly as we approximate more and more toward a limit set by Nature to further extension and to that continually met with in the financial problem involved. As the costs of such growth increase in a high ratio, it is always the fact that it will not pay, at any given moment, to very greatly increase speeds or improve accommodations; but the state of the art of steam-navigation now reached is such that it is not likely that many will be found to mourn the fact that we advance no more rapidly. As the writer has elsewhere remarked : ¹ —

¹ The Forum, 1888, — "Form and Speed of Ships."

“The primary conditions are very readily determined and specified ; but the working out of these conditions to a satisfactory result involves the application of principles which are the fruit of some of the most abstruse mathematical investigations, of the most ingenious and elaborate systems of experiment, and of the most extended and varied experience. In certain directions we are to-day probably very near the limit of perfect construction ; but the conditions controlling the problem are so different where different ends are sought, and these differences lead to such apparently opposite lines of improvement, and to such varied forms of vessel, that it has been, and still is, to a certain extent, very difficult to reach correct formulas of application ; and probably few naval architects have been able to acquire very distinct views of the best principles of design for specified purposes.”

The obvious conditions of maximum speed, irrespective of other desiderata, as comfort, handiness, ease in a seaway, stability (all which must be considered to a greater or less extent by the naval architect in designing a vessel), are —

- (1) Maximum power in a given weight and space.
- (2) Minimum weight and volume of vessel.
- (3) Minimum frictional and other resistance of wetted surfaces.
- (4) Maximum perfection of form, having reference to the resistances to forward motion, and to lateral drift.

In the steam vessel “stiffness” is unimportant ; and stability becomes essential only as affecting the motion

of the ship in a seaway, and in giving safety against excessive rolling, or against overturn.

To state these principles more in detail: maximum power is obtained by designing light, powerful, and efficient engines and boilers, and by applying their energy to the instrument of propulsion in such manner as to lose the least possible proportion in friction and wasteful agitation of the water. The machinery must be as light as is consistent with strength and safety, and must be driven at as high speed, and under as high pressure as is practicable; while economy in the use of steam and fuel is a hardly less important condition of excellence. Minimum weight and volume of vessel are secured in the case of the steamer, by reduction to a minimum of weights carried, and by the surrender of the space which is ordinarily claimed for comforts and conveniences. In both forms of vessel the material used in construction determines, to a great extent, what can be accomplished in this direction. The increased use of iron and steel is bringing in much lighter hulls than could possibly have been made in wood, and has given a degree of strength and safety which the wooden hull never possessed, and never could attain. The results of study of the forms of fishes, as developed by the Great Architect of Nature, with perfect adaptation to his purposes, and the comparison of the shapes of the best ship-forms yet produced by human ingenuity and skill, seem to the author to indicate that we have attained such perfection of form and proportion that no very great or rapid advance is reasonably to be

expected in the near future, and that the problem of the fast vessel is substantially solved; while further advances in speed must be expected mainly to come of devices for increasing propelling power, of new methods of securing lightness combined with stability, and perhaps, most of all, by increasing size of ship, as we have seen the size of ocean steamers increased. The limit of speed for vessels of usual sizes, whether using sail or steam, would seem to be already very nearly reached. Every gain now made must probably be made only by the application of extraordinary care and skill, under the guidance of sound judgment and large experience.

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